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President Harding Passes On

ELECTRIC railway men will feel that they have suffered a tremendous loss in the death of Warren Gamaliel Harding, for aside from the admiration of his great statesmanship, they feel the industry has had something of a personal friend in him. Ever since his address as U. S. Senator before the Midyear meeting of the American Electric Railway Association in Cleveland in 1920, they have felt that in Harding they had a man who comprehended the problems and the accomplishments of the electric railways and who appreciated their contribution to present-day life. Since that Cleveland speech he has had the greatest good will and support, almost to a man, of the electric railway industry.

His reappearance before a meeting of electric railway men has been sought again and again, not so much because of the value from a publicity standpoint but because it was desired to hear words of wisdom and understanding from him again. He has expressed a sincere desire to accept these invitations, but more important things have commanded his time. Last February in Washington he received a group of the principal executives of the industry and chatted with them in his friendly way for a few minutes, as recorded in the JOURNAL at that time.

There is this consolation. The great things that President Harding has done in bringing the White House close to the people, in pursuing his policy of more business in government and less government in business, of making the government truly helpful to business, in reducing the cost of government—these things have received such an impetus at his hands that they will live on after him for a long time to come. There is another consolation for electric railway men in the fact that Calvin Coolidge, who succeeds to this high office, has also shown his interest in the electric railway industry and his sympathy with its special problems.

Mr. Coolidge was Lieutenant-Governor of Massachusetts in 1916, 1917 and 1918 and Governor in 1919 and 1920, and it was during these years that the acts recognizing the dependence of the public on good electric railway transportation were passed by the Massachusetts Legislature. While Governor in 1920, Mr. Coolidge was called upon in a very definite way to carry out the intent of these acts, when the trustees of the Eastern Massachusetts Street Railway discontinued service in Salem, Peabody and neighboring towns because of jitney competition. The Governor was asked by the mayors of these cities to remove the trustees, but he pointed out that the public could have only such service as it was willing to pay for. Then, after a conference arranged by him, the jitneys were withdrawn and electric railway service resumed. This was shortly after Mr. Coolidge took his famous action in connection with the strike of the Boston policemen. That the new President's interest in good transportation has continued was shown in his address delivered February 16, 1923, at the Midyear meeting of the American Electric Railway Association.

In President Coolidge the country will have as chief executive a sound thinker who is not afraid to follow where he feels that duty leads.

Public Service Shuts Down— Will the Industry Suffer?

AS A RESULT of a strike of all trainmen and maintenance employees, the Public Service Railway has put up its 1,500 cars serving 147 New Jersey communities, has discharged several hundred of the monthly payroll employees and apparently has entrenched itself for a long period of idleness if necessary. The exact course upon which the company has embarked is not disclosed, but the outcome is one of concern to the whole industry.

The public's interest in the issue between the railway and its men has been eclipsed by the determined effort of the buses to demonstrate their ability to replace trolleys for mass transportation in a number of large communities. The union officer supervising the situation for the trainmen charges that the company is in a plot to force elimination of the jitneys by leaving the people without service. If such is the case, the men could not be more short sighted than to strike now, for their jobs are certainly in jeopardy if the jitneys prove able to handle the business.

If this is the plan of the company, the outlook is not any too cheering. There is probably no place in the country where the buses would have a better possibility of being able to provide reasonably adequate service as substitutes for the cars. They were already organized and operating to such an extent that they hauled 141,326,123 passengers in ten cities in 1922, as against 325,265,180 revenue passengers carried by the entire railway system. And this bus service is provided in an orderly, supervised manner with about 1,400 reasonably good buses. Taking into account the large number of people who can walk to the network of steam lines, and to the tubes and the ferries, the additional buses required to provide the entire transportation service are less than would be the case elsewhere under the more usual travel conditions.

Furthermore, the railway seems to have accumulated

a disfavor extending with lamentable completeness throughout the territory. This is now reflected in the fact that most of the mayors, the Newark director of safety, the supervisor of traffic and other public officials are doing everything in their power, seemingly, to make the present test of the buses a success.

So if it is to force elimination of the buses that the railway has ceased operation, there may well be some misgivings about the result, for even an approximation of the equivalent of the railway service would be heralded in many quarters as complete success, and the peculiar circumstances which made this possible there would not be taken into account in applying that example to another situation totally different.

Misrepresentation Concerning Accidents Is Harmful

A PROMINENT transit official in New York City recently declared that the greatest danger on the transit lines of the city was that of panic among the passengers. While this danger can never be wholly eliminated where many passengers are closely confined in crowded vehicles, nevertheless the evil would be mitigated if the public were more accurately informed. Newspapers are prone to feature every railway accident. Unfortunately they not only feature but often entirely misrepresent its cause and effect. The horrors and the dangers of electric railway travel are exaggerated to a point where one wonders that the timid dare ride at all. One reads of choking sulphur fumes rising from burning insulation. Sheets of flame are said to leap from end to end of a car when the controller burns up. When a trolley wire drops in the street balls of fire fly in all directions. Such descriptions, while good newspaper copy, are not facts.

The reaction of an electric railway man to misrepresentations of this sort may be only one of amusement. He is familiar with his equipment, and separates the true from the false in the press story. But the reaction upon the general public is far different. The average man knows very little about electricity except that it is a powerful force, and he readily believes the wildest stories concerning its manifestations. Real harm is therefore done by inaccurate newspaper accounts of trifling mishaps. The electric railway impresses the passenger, not as the safest means of urban transportation, which it really is, but as a fearful and wonderful thing. Would it not pay the railway to counteract this tendency by furnishing the newspapers with such complete and accurate information that there would be no excuse for misrepresentation.

Why Jersey Central Traction Has Been Abandoned

WHAT is the true significance of the recent cessation of operation by the Jersey Central Traction Company? A careful study of the situation leads inevitably to the conclusion that the railway failed because it was never really needed. Nearly 40 miles of track were laid to serve a population which in 1910 numbered only 22,350. It was the expectation of the original builders that the territory would develop and the population increase. In 1920, however, the population was only 37,324. That the growth has not been more rapid is due largely to the physical characteristics of the region, the greater part of which is not such as to encourage permanent development.

Due to widespread use of private automobiles, the railway traffic has not even kept pace with this small increase in population. The roadbed was very uneven and poorly maintained. Service was infrequent and comparatively slow. The main line headway during the greater part of the day was one hour which was infrequent considering the short average length of ride. Until recently most of the rolling stock was old in design, dingy in appearance, and badly kept up. Under these circumstances, it is hardly surprising that the riding went largely to private automobiles. Bus competition did not play a very important part in the trouble suffered by the company.

One of the greatest handicaps from which the railway suffered was the low and marshy character of the land. It was extremely difficult to keep the track foundation in good condition and a great deal of trestle work which was necessary entailed heavy maintenance expense.

Thus it appears that the road should never have been built; that the service was such as not to attract the full patronage of the riders available; and that physical conditions worked against low operating costs. In short, the Jersey Central Traction Company was one of those promoters' railroads, the disappearance of which must be expected under present-day conditions. It was founded upon hopes rather than upon facts. Such a road in passing leaves no blemish on those lines which were built to render service, but its passing needs this explanation and interpretation for those who would look upon it as another example of the demise of the railway.

New Cars Make It Easier to Sell Transportation

THE electric railways in Lexington, Ky., and Huntington, W. Va., are completely replacing their present obsolete rolling stock with new cars. The situations are explained in an article by "Spectator" in this issue. These replacements are being made as part of a new effort to place the respective railways on a profitable basis. Experience thus far indicates that they will greatly assist in doing so.

The industry has been through an era of car remodeling in the last few years, and a great deal of this work is still in progress. In many cases it is necessary, but is of doubtful expediency in all cases where the old cars can possibly be discarded and new ones bought. In Lexington, cars remodeled for one-man operation have been in use for some time, but a way has been found to procure a complete new supply of cars in view of their prospective profitableness. An old house, an old shoe, an old automobile or an old electric car is still old, no matter how much it is repaired and painted. It cannot but appear what it is—"patched." When a car becomes run down and out of date, the economic limit of repair is soon reached. Furthermore, an old car has little value as an aid in selling transportation, whereas a new car sells its way.

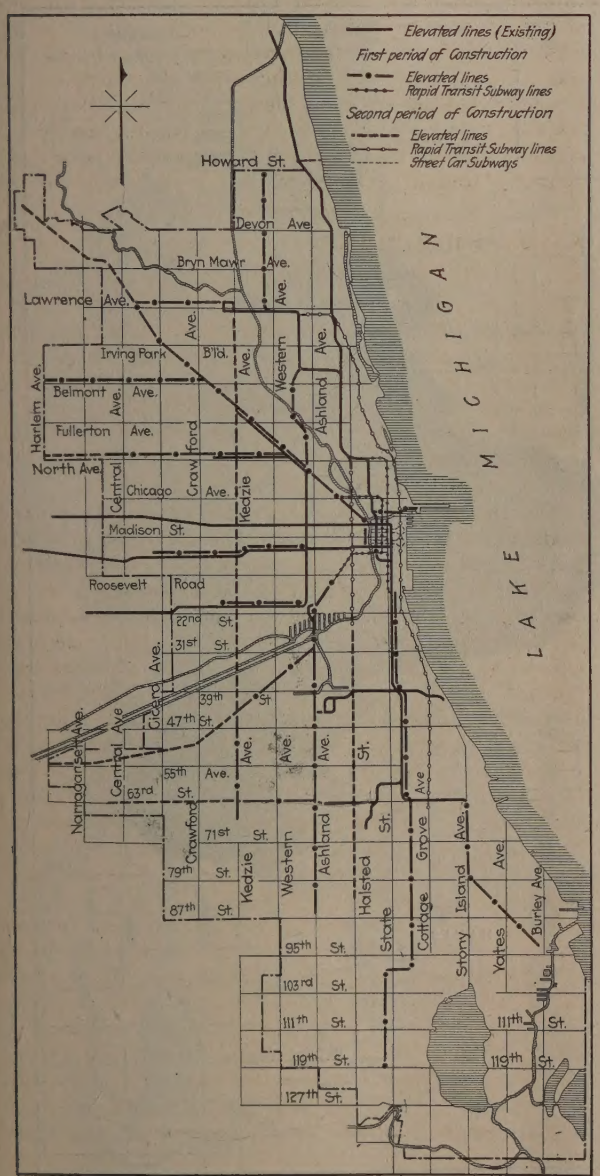
The increased demand for new cars during the past eighteen months indicates that the truth of the above is being appreciated. Before deciding on that next big car rehabilitation job, would it not be wise to consider all of the advantages of scrapping the old cars and buying brand new ones? In so doing it would seem advisable to give serious consideration to a type of construction designed for a ten year probable life instead of adding weight and cost for the purpose of obtaining a 30 year life, with the prospect of additional future heavy overhaul and remodeling costs to keep the long-life car up to the demands of changing service requirements.

$372,833,000 Construction Proposed for Chicago

Details of the Kelker Report Show Extensions to Rapid Transit and Surface Lines Throughout the City—The Plan Is Divided into Two Periods to Get Benefits Sooner—Time Savings in All Parts of the City Are Shown

THE general outline of plans for a unified transportation system presented to the City Council of Chicago by R. F. Kelker, Jr., its consulting engineer, were given in an article published in this paper July 14. The present article deals with the recommended construction program through which the development of the unified system is to be effective.

While the general appearance of the plan recommended is similar to that proposed by the 1916 Traction and Subway Commission, the layout of the principal routes, and particularly the connections in the central business district, differ in the essential arrangements from that plan. The proposals made by Mr. Kelker provide for a unified system of elevated, subway and surface lines based on forecasts of the growth of population and traffic demands up to 1950, and are considerably more comprehensive.



Rapid Transit Lines at the End of the First and Second Periods

The portions of this plan required immediately have been grouped in the first period of construction, the remaining portions being planned for a second period.

In the opinion of the engineer the construction outlined provides a complete physical plan for the entire city. The wide distribution of population in Chicago requires that great care be used in projecting rapid transit lines, particularly to avoid heavy concentrated investments which can serve but comparatively few car riders. It is obvious that any construction which requires an excessive investment limits the development of the system as a whole and, therefore, limits the number of people served.

The elevated railways now operate over thirteen tracks outside of the central business district, and all of this service is concentrated upon two tracks on the Union Elevated loop. The elevated lines have a latent service capacity which will be available when this restriction is removed. The key to the solution of the elevated terminal problem is found in providing four tracks through the central business district for North Side and South Side trains and by devoting the two tracks of the Union Loop in Van Buren Street, Wabash Avenue and Lake Street to the exclusive use of West Side trains. This will be accomplished by the construction of a high level two-track subway in State Street and North Avenue from a connection with the South Side Elevated near Sixteenth Street to a connection with the Northwestern Elevated near Orleans Street and by the construction of a two-track elevated railroad in Wells and Polk Streets from a connection with the Union Loop at Wells and Van Buren Streets to a connection with the South Side elevated at the alley west of Wabash Avenue.

To secure full track capacity existing crossings on the same level on Wells Street at Lake Street and Van Buren Street will be eliminated. The Lake Street tracks will be elevated over the Wells Street tracks at Lake and Wells Streets, and the Wells Street tracks will be elevated over the Metropolitan Elevated tracks at Wells and Van Buren Streets, thereby separating the grades and removing interference from West Side trains.

First Period of Construction

The existing surface and elevated lines and also the rapid transit construction (subway and elevated) recommended for the first period of construction are shown in the map on this page. The central portion of the city is shown in greater detail on page 170.

The principal subways proposed are one on State

Street, which will connect the North Side and the South Side of Chicago, forming with the existing elevated railroad a four-track rapid transit trunk line from Sixty-third Street to Howard Street. This will provide transportation through the area just north of the Chicago River now practically without rapid transit service and also will afford a convenient means of reaching Lincoln Park.

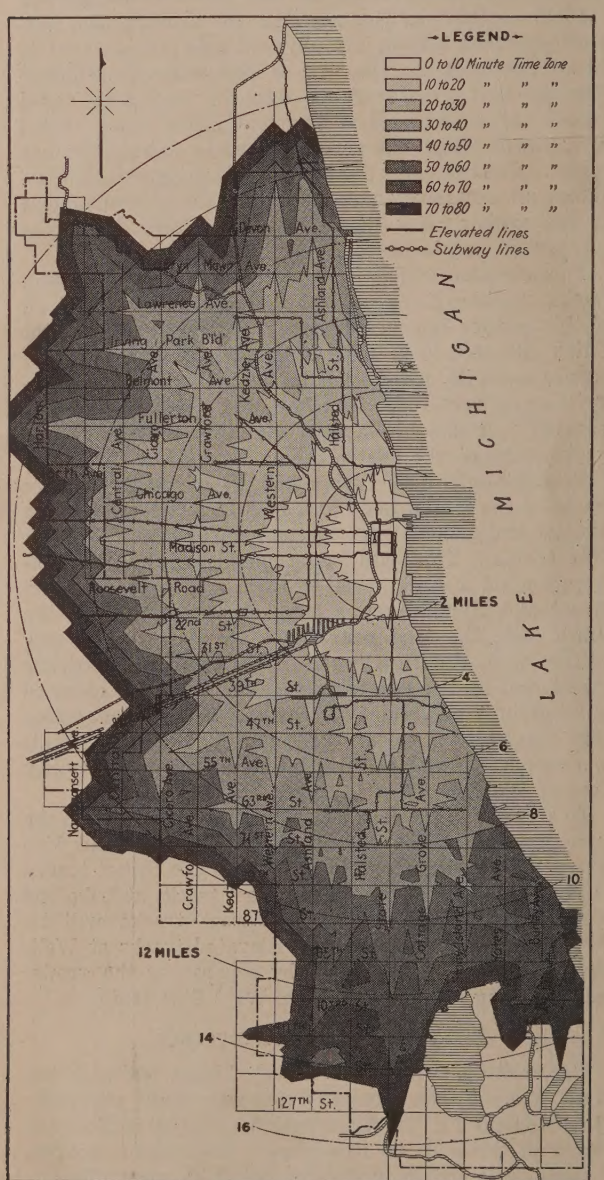
The Clark Street subway will be used to provide maximum transfer facilities by a connection through the central business district, between an elevated line along Milwaukee Avenue to the northwest and one on Blue Island and Archer Avenues to the southwest. This line will consist of two tracks in the outer portion with two additional loading tracks in the subway in Clark Street between Harrison Street and Randolph Street to provide ample facilities in this heavy loading district.

ELEVATED RAILROADS

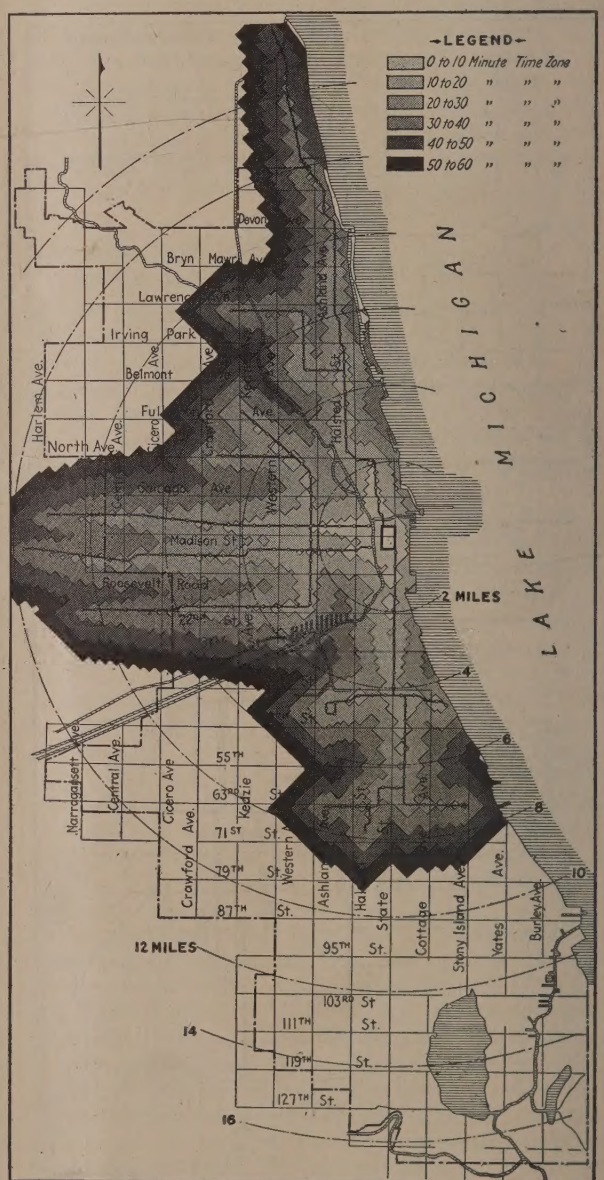
One of the most serious deficiencies of the existing elevated railroad systems, states the engineer, is the lack of a north-and-south trunk line located west of the Chicago river. He concurs in the recommendation of the Chicago Traction and Subway Commission for a line serving Ashland Avenue as a through north-and-south artery of travel, which is designed to divert between 20 and 25 per cent of the Union Loop traffic. This line will intersect and afford transfer facilities with eight rapid transit lines and will also intersect thirty-seven street car lines. It will be a rapid transit elevated railroad extending from Eighty-seventh Street in the southern section of the city to Howard Street in the northern section.

Other important elevated construction recommended for the first period of construction, in addition to the lines on Milwaukee, Blue Island and Archer Avenues, are branches of the Milwaukee Avenue trunk on North and Belmont Avenues, and extensions of the South Side Elevated parallel to State Street as far as Pullman, and along Stony Island and South Chicago Avenues to South Chicago.

The single piece of new elevated construction recom-



Time Zones for the Surface Lines—1922



Time Zones for the Elevated Lines—1922

These charts show the time to reach any part of the city, starting at the center of the Loop, by either of the present independent transportation systems.

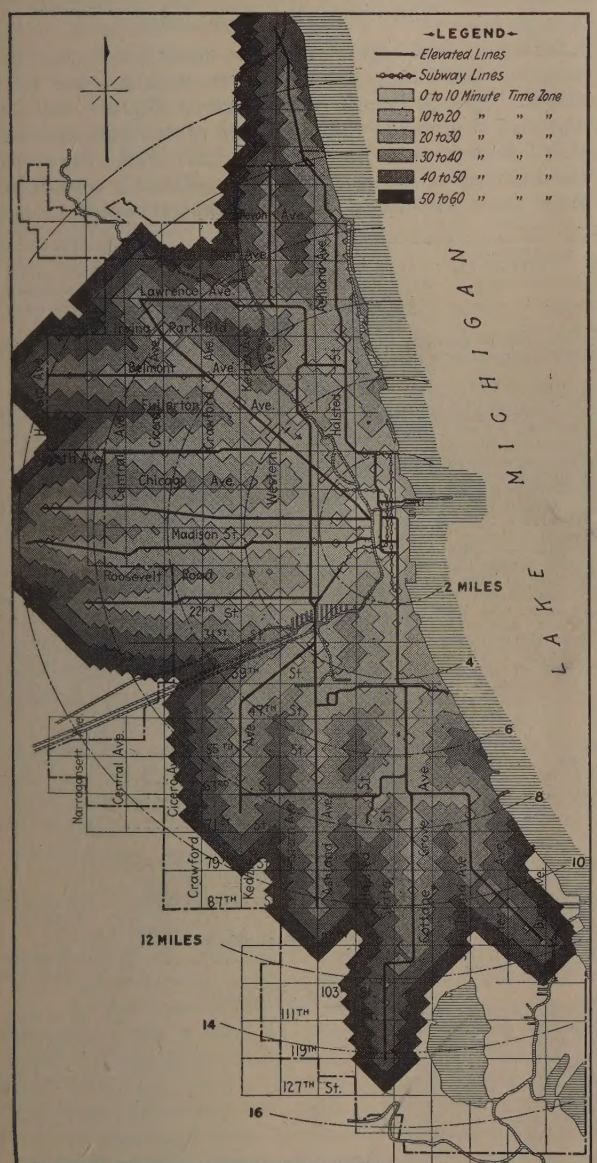
mended in the central business district will be a connecting link, consisting of a four-track rapid transit line for north-and-south service, consisting of three parts: (a) The existing Northwestern Elevated tracks in Wells and Franklin Streets lying between Orleans Street Junction with the State Street subway and Lake Street; (b) the Wells Street track of the Union Loop, lying between Lake Street and Van Buren Street and (c) a two-track elevated railroad in Wells Street from a connection with the Loop at Van Buren Street to Polk Street, and running then easterly in Polk Street to a junction with the Southside Elevated in the alley west of Wabash Avenue.

Tne engineer states that grade crossings on rapid transit lines materially reduce track capacity, and he recommends that the tracks of the branch line be raised over those of the main line at three points: Lake and Wells Streets, Van Buren and Wells Streets, and at the Ravenswood Junction just north of Belmont Avenue.

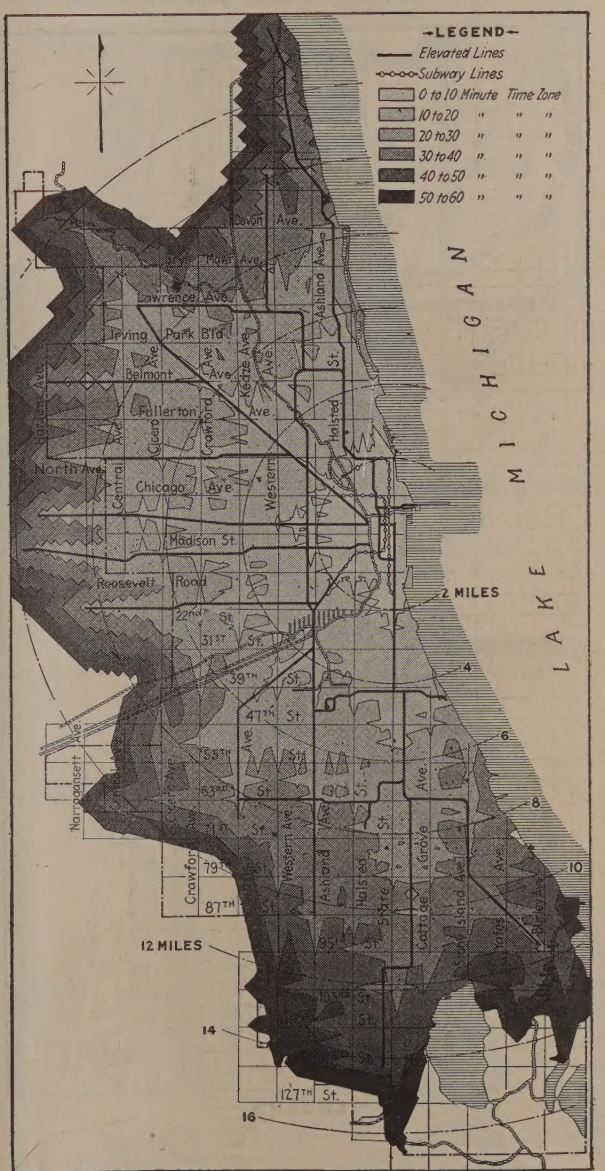
The rapid transit system described has been planned so as permit direct routing and to avoid duplication of service. Tentative schedules of the various routes have been prepared and track layouts designed so that control points or throats which would restrict the full and uniform use of track facilities have been avoided. Through routing of service from one extremity of the system to the other will be the basic principle of operation.

STREET RAILWAYS

The surface lines will be extended during the first period of construction by building 73 miles of double-track extensions and double-tracking 7 miles of existing single-track line. By the construction of these extensions street car service will be furnished in substantially all the built-up area of the city as well as many areas now developing. The engineer states that the proposed plan will reduce the length of the haul



Time Zones for the Rapid Transit Lines at the End of the First Period of Construction



Time Zones for the Unified Transportation System at the End of the First Period of Construction

The reduction in time to reach points in Chicago by adoption of the program will be seen by comparing these diagrams with those on the preceding page. The greater time saving with unification is seen by comparing the two diagrams above.

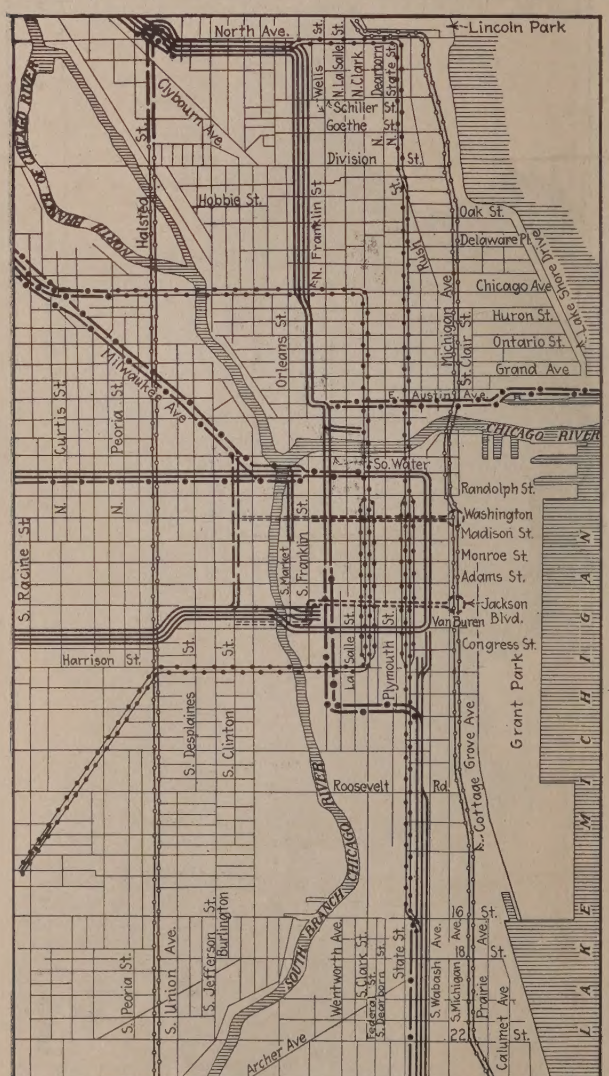
and the cost of operation, as it is based upon unification and co-ordination of the elevated railroads and the surface lines. Using the surface lines as collectors and distributors of traffic, and developing a rapid transit network for mass transport with liberal transfer privileges will insure a substantial reduction in the length of haul on the surface lines and a corresponding reduction in cost of operation. Of the extensions recommended the principal ones are on Central Avenue, from Elston Avenue to Roosevelt Road, 8.5 miles of double track and on Western Avenue from Seventy-first Street to 119th Street, 6 miles of double track. These extensions will necessitate the purchase of additional cars. The type recommended will be of the most modern design, and the same general type as, but lighter than, most of the cars now in use on the surface lines.

SECOND PERIOD OF CONSTRUCTION

The principal rapid transit subways included in the second period are the Cottage Grove-Broadway Line, and the Halsted Street Line. These will both be high-level subways. The only subways recommended for surface cars are one under Washington Street and one under Jackson Street, both of which will connect with the existing tunnels under the South branch of the Chicago River. These will be low-level subways to pass under the north-and-south rapid transit subways.

Of the elevated construction for the second period the Kedzie Avenue elevated probably will be the most important. This will be built on or near Kedzie Avenue from Sixty-seventh Street to Lawrence Avenue. The Halsted Street elevated and subway route will form a north-and-south rapid transit line between Eighty-fifth Street and North Avenue, where it will connect with the Northwestern Elevated.

The street railway construction recommended for this period consists of 48 miles of double track, principally extensions of lines either existing at present or to be built during the first period.



Subway and Elevated Tracks in the Central Area at the End of the Second Period of Construction

THE UNION ELEVATED LOOP

The engineer states that for many years the removal of the Union Elevated Loop structure has been urged. The principal reasons given for its removal are that it prevents the expansion of the business district, interferes with street traffic and also with the lighting of adjacent buildings. Having considered fully these objections, he states that it would be un-

ESTIMATE OF COST FOR COMPLETE PROGRAM FOR UNIFIED SYSTEM

First Period of Construction

RAPID TRANSIT SUBWAYS

State Street subway	$19,430,000
Clark Street subway	24,900,000

ELEVATED RAILROADS

Mid-City trunk line	14,460,000
Milwaukee Avenue line	8,125,000
Belmont Avenue line	3,850,000
Humboldt Park line	4,099,000
Marquette Park line	6,210,000
Douglas Park line	1,730,000
Polk Street and Wells Street line	940,000
Southside Elevated main line	3,930,000
Roseland line	7,625,000
South Chicago line	3,770,000
Englewood line	2,090,000
Stock Yards line	400,000
Municipal Pier line	1,125,000
Northwestern Elevated main line	300,000
Ravenswood line	3,660,000
Grade separation	1,454,000
Oak Park line	2,555,000
Garfield Park line	2,450,000
Elevated stations	2,400,000
3,000 modern rapid transit cars	69,000,000
Substations, shops, yards and terminals	15,000,000

STREET RAILWAYS

73.01 miles of double-track street railway lines	13,142,000
6.98 miles of single-track street railway lines	628,000
250 modern street railway cars	3,750,000
Substations and car stations	820,000
Total	$217,843,000

Second Period of Construction

RAPID TRANSIT SUBWAYS

Cottage Grove-Broadway line	$55,200,000
Halsted Street line	20,610,000

STREET CAR SUBWAYS

Washington Street subway	3,345,000
Jackson Street subway	3,525,000

ELEVATED RAILROADS

Kedzie Avenue line	10,000,000
Halsted Street line	6,500,000
Clinton Street line	635,000
Englewood line	3,260,000
Archer Avenue line	4,900,000
Humboldt Park line	1,010,000
Milwaukee Avenue line	3,810,000
1,200 modern rapid transit cars	27,600,000
Substations, shops, yards and terminals	6,000,000

STREET RAILWAYS

47.75 miles of double-track street railway lines	8,595,000
Total	$154,990,000
Total estimate, first and second periods	$372,833,000

justifiable at the present time to substitute subways in lieu of this structure, at an expense of many milions of dollars. Undoubtedly the time will come when the congestion of street traffic will be so great as to compel its removal, so accordingly no construction has been recommended which would prevent its ultimate removal.

Estimates of Costs

In order to avoid the expense of computing unit quantities, those which were determined by the Chicago Traction and Subway Commission in 1916 were used in the estimates of costs which were made under the supervision of H. M. Brinckerhoff of the firm of Parsons, Klapp, Brinckerhoff & Douglas.

The accompanying estimates do not include the cost of such real estate as may be necessary for rights of way.

Benefits of the Unified System

In addition to the benefits which will follow from the unification and expansion of existing transportation lines, other important benefits will be secured, according to the engineer. Rapid transit lines provide high speed and non-interrupted operation, which are two highly desirable service factors in transport. Time-zone maps, showing the time required to reach any point in the city from the Union Loop, have been made by the engineer. In preparing these maps the present running time for existing surface and elevated lines was used, and for proposed lines it was estimated. Time for making a transfer, or for reaching the surface from a subway or elevated train was estimated at one minute. The rate of walking was estimated at 3 m.p.h. Those reproduced in the engravings show the time required for existing surface lines, for existing elevated railroads, for the subway and elevated lines operating together at the end of the first period of construction, and for the unified system.

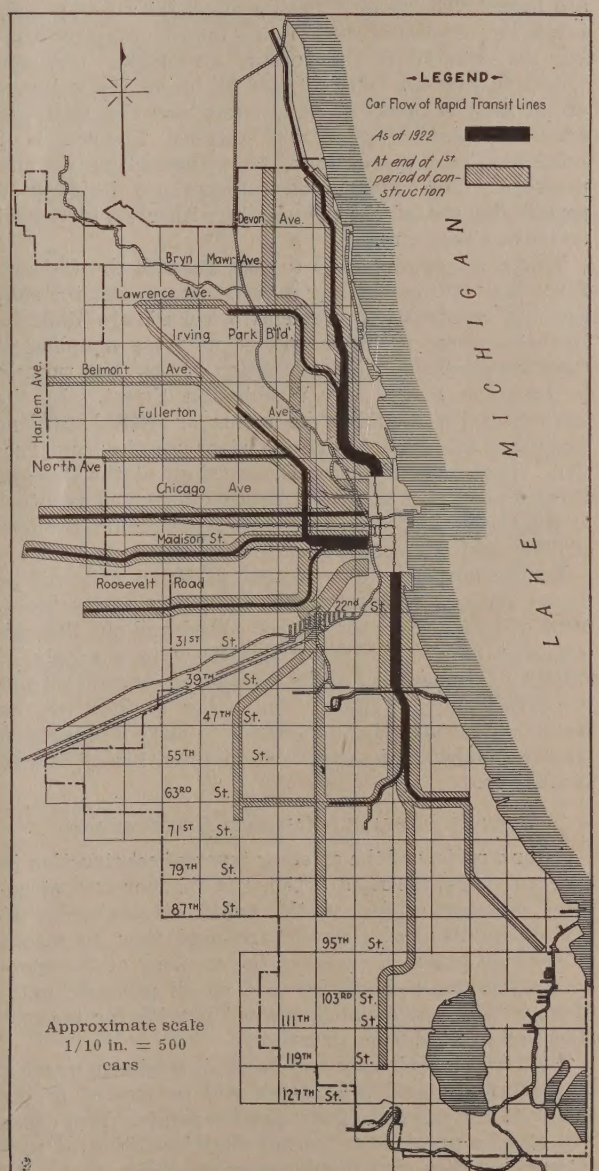
Starting at the Union Loop, points were located at five-minute intervals on every outbound transportation line and also along the intersecting lines to determine time contours. On the map for the surface lines it will be noted that the twenty-thirty-minute zone is approximately centered on the 4-mile arc, while the same zone for the unified transportation system is centered on approximately the 7-mile arc, thus indicating that on the proposed comprehensive system a 7-mile journey can be made in the time now required by a 4-mile trip. All of the time zones will be greatly widened by the adoption of this comprehensive plan. For instance, the twenty-thirty-minute zone shown for the unified system is approximately double the area of the twenty-thirty-minute zone shown for the rapid transit and surface lines separately.

Capacity Will Be Increased

The outbound loading in October, 1922, from the central business district in the maximum hour of the evening rush was 80,101 passengers in 1,048 cars on the surface lines and 80,087 riders in 1,109 cars on the elevated lines, a total of 160,188 passengers. At the end of the first period of construction, subway and elevated lines will have a joint capacity of nearly 400,000, or more than double the total number now carried by the surface and elevated lines. The car flow chart shows the vastly increased capacity of the rapid transit lines of the unified transportation system at the end of the first period of construction, as compared with the capacity of the existing elevated system.

The maximum number of cars that can be operated now on either elevated or surface routes, which terminate in or pass through the central business district, is determined by throats or controlling points in this district. As the present outlets from this congested district are used nearly to their practical limit, the elimination of such controlling points will result in greatly increased capacity throughout the length of such routes.

The operation of the unified transportation system will reduce the number of street cars now required to serve the central business district. No curtailment in this street car service should be made until the rapid transit lines have been equipped to carry the load. The handling of all long-haul passengers on properly designed rapid transit lines will reduce the need for surface cars, and eliminate them to a large extent from the central business district. In the opinion of the engineer adequate transportation will be the most potent factor in causing the central business district to expand to the north, west and south. The unified trans-



Car Flow Diagram of the Rapid Transit Lines at the End of the First Period of Construction and in 1922

portation system is designed to serve a delivery district of nearly three square miles.

Operating Expenses Will Be Reduced

The average length of ride on the surface lines at the present is over 4.2 miles, which is the longest average ride provided by any street car service in the world. Under the proposed unified system, with transfers, practically all of the long haul traffic will be diverted to the elevated and subway lines, thereby reducing materially the average length of ride on the street car lines. As the operating cost per car mile on rapid transit lines is only 75 per cent of the operating cost per car-mile on surface lines, it follows that the cost per passenger trip will be less than at present.

Design and Construction

The engineer points out that he has not made detailed estimates, but that the essential elements of design are outlined in such a manner as to indicate the various types of construction, upon which the estimates of cost are based. The general design of all the subway lines is similar, structural steel frames on 5-ft. centers forming the skeleton of the subway structure. The side walls and roof are concrete, and all beams and columns are incased in concrete. A concrete partition wall separates adjacent bores except at stations. The floor is of reinforced concrete designed to withstand hydrostatic pressure. The bores of all subways are designed to permit the use of the tunnels by either rapid transit trains or street cars.

Where the subways dip to pass beneath the Chicago River they will reach their greatest depth, and the subaqueous construction problems involved are difficult. However, these problems will be no more complicated than were those in the construction of the river tunnels in La Salle Street and Washington Street. In the opinion of the engineer, no undue or extra-hazardous conditions are likely to arise in river crossing construction. The grade of the under-crossings at the Chicago River is determined by the depth of channel required by the United States Government. A maximum gradient of 3 per cent is recommended for the approaches.

For the purposes of ventilation, partition walls will be placed between adjacent tracks in order that the movement of trains will push the air ahead and out through openings, and at the same time draw in a supply of fresh air. In addition to the ventilation caused by train movement, supplementary ventilating devices will be installed. It may also be advisable to make a connection from the subways to adjacent buildings for additional ventilation.

Type of Elevated Railroad Recommended

After a review of the existing types of construction in different cities, the construction of solid-floor steel structures is recommended in the public streets and that where two lines of columns are used they be placed on the side walks. In view of the economy of the open-deck structure it should be used on all private rights-of-way. The cost estimates do not provide for the construction of solid-floor structures.

The rapid transit cars will be of all steel construction of modern design. Side doors will be located in the center of the car and at the quarter points. End doors will also be provided to permit the circulation of passengers between cars in the train. The side doors will be mechanically operated and electrically controlled so as to facilitate loading and prevent undue delay at stations.

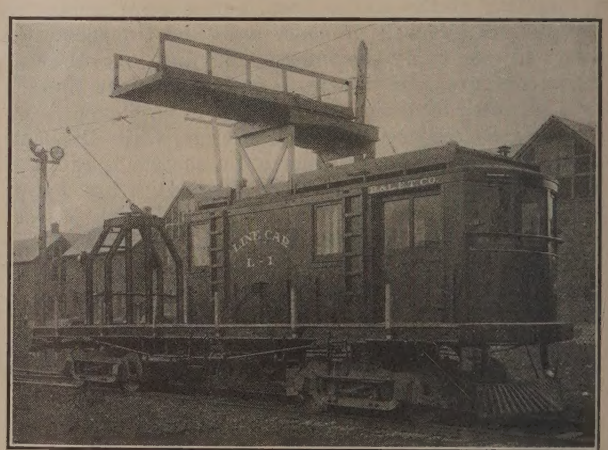
The use of protected third rails is recommended for power distribution throughout the system. Automatic block signals and interlocking plants will be installed to insure safety of operation, and to assist in the efficient spacing and dispatching of trains. All switches under control of interlocking plants will be operated by electro-pneumatic mechanism of approved design.

The estimates of costs for surface lines are based on the continued use of the type of standard track construction used in Chicago since 1907, consisting of 9-in. girder rails supported by treated wood ties laid upon either a 6-in. concrete foundation or an 8-in. rolled stone foundation. The joints are welded and the 16-ft. right-of-way is paved with granite blocks laid on a concrete base and grouted. The paving cost is about 30 per cent of the cost of the entire track construction. Attention is also called to the monolithic track construction now used in Detroit. It is stated that if found suitable for Chicago it should be adopted, as its use would reduce the estimate by more than six million dollars.

Reel Rack on Rear of Line Car

ON A LINE CAR recently built in the shops of the Buffalo & Lake Erie Traction Company the frame supporting the trolley base and pole is used also as a rack for reels of wire. The framework is a double inverted U, made of 6-in. channels and supported by additional vertical members, as shown in the accompanying illustration. A 3-in. axle for carrying two reels of trolley wire rests on this framework.

The car is of sturdy construction throughout, with an over-all length of 42.5 ft. and a width of 8 ft. 8 in. The underframe is of 8-in. I-beams. Standard trucks



Framework of Channel Iron Supports Two Reels of Wire

with steel wheels, four GE-204 motors and K-34 control are used. The height of the car with tower down is 12 ft. 6 in. The mechanism for raising the tower is ordinarily operated by air, although there is a hand mechanism for emergency. A vertical lift of 6 ft. 6 in. is possible, making the maximum height about 19 ft.

P. J. Wood, master mechanic, designed and built the car at the company's own shops. The total cost was less than $5,900, including labor, and the material used was charged for as second hand at current market prices.

An Analysis of Special Trackwork Loads

The Effect of Impact Is the Most Serious Factor and the Analysis Shows the Location of the Points Where This Is Greatest—Special Examples Show Where Excessive Wear and Impact Take Place

By M. Bernard
New York, N. Y.

THERE have appeared in the ELECTRIC RAILWAY JOURNAL from time to time articles describing some deviation from the accepted standards of special trackwork construction. These can be divided into two general groups: One in which the purpose is to lessen the wear and pounding on special work by providing flange bearing of the wheel on the rail, and the other by the use of metal of different composition from the manganese steel so familiar to electric railway engineers. In the former, flange bearing is provided throughout the limits of the special work to decrease to a minimum the shock at the intersections of the flangeways. In the latter, the shock resisting qualities of the special work are increased by the use of alloy steel, such as chrome nickel or other alloys.

Although various methods for embodying the above have been proposed at various times, yet fundamental principles descriptive of the various influence lines of the loads involved, such as are so common in any study of steel structures, have not been given. As is well known, it is the general practice to use the same design of frogs without regard to their particular location in a special-work layout. This is rather arbitrary if we consider that no other engineering structure is designed without regard to the various effects of the different loads.

In order to determine whether the present practice of special-work design conforms to the particular requirement imposed by different loads and shocks, the accompanying diagram has been made to show how loads are received and transmitted at intersection points. A double-track crossing with the tracks lettered *A*, *B*, *C* and *D* is shown. The direction of traffic is denoted by arrows. Where wear alone results by the cars on the respective tracks. the corresponding wearing points are given capital letters corresponding to the track over which the cars operate (*A*, *B*, *C*, *D*). Where impact results the capital letters are shown with an affix *I* (*AI*, *BI*, *CI*, *DI*). In order to group the frogs with the same relative effects, small letters, *a*, *b*, *c* and *d*, are used. Frogs with the same letter receive the same wear and impact, and each small letter represents a group of four frogs.

Let us analyze this diagram for three different volumes of traffic, namely: (1) where the traffic on tracks *A* and *B* is practically the same as on tracks *C* and *D*; (2) where the traffic on tracks *A* and *B* is greater than on tracks *C* and *D* and (3) where the traffic on tracks *A* and *B* is less than on tracks *C* and *D*.

To give a concrete example let us ascribe to (1) an annual traffic of 150,000 car passes, to condition (2) an annual traffic of 200,000 car passes for each of tracks *A* and *B* and of 100,000 car passes for each of tracks *C* and *D*, and under conditions (3) an annual traffic of 100,000 car passes for each of tracks *A* and *B* and 200,000 car passes for each of tracks *C* and *D*.

The resultant load action is shown in the accompanying table: This gives figures for traffic over crossing of tracks *A* and *D* only. Corresponding values are the same for the other three crossings.

A comparison of these shows the following:

Frog *a* under any of the three conditions is subjected to practically double the loading effect of any other frog and naturally this frog fails prematurely as compared to the rest of the layout. It would seem that it is not quite logical arbitrarily to specify a comparatively costly alloy steel for a whole crossing if only a small proportion of it requires this material.

It will be noted also from the table that joints should not be located arbitrarily but the distribution of the loads should be considered. The practice of locating joints on the track with the least traffic is not always correct. If possible it would seem to be more logical

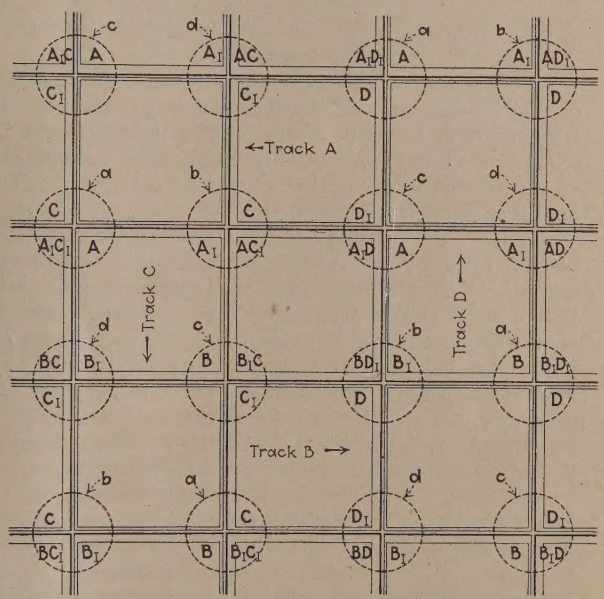
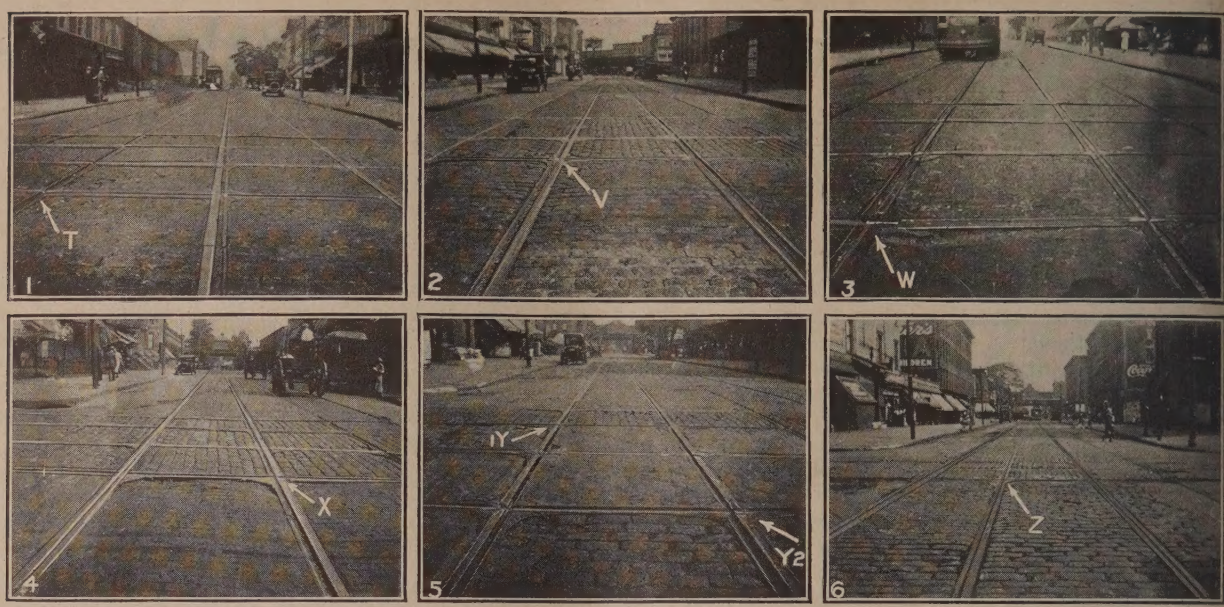


Diagram of Loads and Impact Received and Transmitted on Double-Track Crossings

LOAD ACTION, WEAR AND IMPACT, FOR DOUBLE TRACK CROSSING

Group Frogs Tracks *A* and *D*	*a*			*b*			*c*			*d*		
	A	*AI, DI*	*D*	*D*	*A, DI*	*AI*	*DI*	*AI, D*	*A*	*AI*	*A, D*	*DI*
Wear Case 1	150,000	.....	150,000	150,000	150,000	.....	.....	150,000	150,000	.....	300,000	.....
Impact Case 1	.....	300,000	.....	.....	150,000	150,000	150,000	150,000	.....	150,000	.....	150,000
Wear Case 2	200,000	.....	100,000	100,000	200,000	.....	.....	100,000	200,000	.....	300,000	.....
Impact Case 2	.....	300,000	.....	.....	100,000	200,000	100,000	200,000	.....	200,000	.....	100,000
Wear Case 3	100,000	.....	200,000	200,000	100,000	.....	.....	200,000	100,000	.....	300,000	.....
Impact Case 3	.....	300,000	.....	.....	200,000	100,000	200,000	100,000	.....	100,000	.....	200,000



Some Crossing Frogs Wear Out While Others Remain in Good Condition

to pair frogs as much as possible according to their carrying like or similar loads.

At the points where wear alone results, the presence of steel harder than the abutting rail results generally in a pounding at the edge of the center. Instances can be cited where unbroken main-line hard-center frogs failed as a result of the pounding caused by unequal wearing qualities of the abutting pieces.

A study of the table also shows that indiscriminate use of arc welding is not justified. In many cases grinding the points of frogs to a uniform level gives better results. An analysis of the diagram seems to show the reason. It will be noted that due to double impact the points *AI, DI* must in time be pounded to a lower level than *A* and *D* which further increases the pounding effect of the wheels on *AI, DI*. Under most conditions the grinding to a uniform level will give better results than building up *AI, DI* with the arc welder. The reason for this is that the metal added by welding will not withstand pounding as well as the original metal would. Grinding of the welded portion to a uniform level is seldom obtained. Special work as a general rule is hardly ever renewed due to breaking down of the component parts between the frog points whether the construction be built up, hard center or solid.

From a study of the diagram the weakest points for any given service are easily determined, and the design should be made with due consideration to them. Thus in the examples taken frog *a* is the weakest point. Only about 6 per cent of the points of contact at intersections receive a greater wheel load action than normal. The conclusion, therefore, is that it is hardly justified economically to make the rest of the crossing the same as is required for this 6 per cent. A suggested design is one in which this 6 per cent can be renewed as required until such times as the limit of life is reached in the rest of the crossing. At present when special work is renewed the pieces other than the intersection points are comparatively little worn except, of course, curved special work with sharp radii.

The fact that certain frogs of a crossing wear out while others remain in good condition is further illustrated in the six half-tones shown. In No. 1 the frog at *T*. is badly pounded while other parts are in good condition. It will be noted that *T* corresponds to *a* in the accompanying analysis. In illustration No. 2 the frog *V* begins to show effects of pounding, in No. 3 the frog *W* needs repairs, in No. 4 the frog *X* is showing effects of hard service, in No. 5 both *Y1* and *Y2* require attention, and in No. 6 it is *Z* that shows excessive wear. In all cases the frogs corresponding to *a* in the analysis show excessive wear.

Boston Elevated Spent $17,000,000 on Plant Improvements

THE recent report of the trustees of the Boston Elevated Railway shows that approximately $17,000,000 was spent upon road and equipment, either for entirely new property or for the replacement of worn-out property during the period from July 1, 1918, to Dec. 31, 1922. The following sources supplied this amount for the improvement: $2,000,000, part of proceeds of preferred stock to which the stockholders were compelled to subscribe before the public control act could take effect; $4,787,000, part of the proceeds from the sale of the Cambridge Subway, which has already been appropriated for additions and improvements; $9,018,000, available from the depreciation charge taken out of the cost of service July 1, 1918, to Dec. 31, 1922; $700,000, approximate amount received from insurance and from the sale of real estate properties; $1,800,000 floating debt as of Dec. 31, 1922, which later was to be covered by a bond issue. These sources total $18,305,000.

A total of $17,146,119 has been expended to provide facilities necessary for efficient and economical operation. These facilities include: Cars, $8,404,924; car houses and shops, $1,836,282; power houses and transmission of electricity, $2,679,264; surface lines $3,041,625; elevated structures and appurtenances $871,840; miscellaneous improvements, $312,184.

The County-City Building Which Houses the Offices of Seattle's Street Railway Department and Other Municipal Activities

Four Years of Municipal Railway Ownership in Seattle

By P. M. Fogg
Formerly Secretary Seattle Civil Service Commission

The Lines Were Acquired Because of War Conditions—After an Operating Deficit in 1919 Fares Were Raised to 10 Cents in July, 1920—A New Mayor Reduced Them to 5 Cents on March 1, 1923, but the City Council, Overriding the Mayor's Veto, Compelled a Return to 10 Cents Cash Fare

THE city of Seattle has now experienced a trifle more than four years as owner of an extensive street railway system. Three mayors have successively occupied the chief executive's chair during this period, and changes of policy have been numerous. Twice have rates of fare been raised, only to be lowered, and again increased. Legislation covering this latest change fixed July 5 as the effective date. Traffic, on the other hand, has materially decreased in volume since the system was acquired, and politics has played a vigorous part in the colorful drama of the transportation lines. The history of this case is one of peculiar interest, as it becomes increasingly evident that the city, having found no solution for its pressing railway problems, is in fact completely puzzled to know what to do with the property which it finds on its hands.

The lines were acquired as a result of the acute conditions brought about by the war. Shipbuilders were operating under full pressure from the war bureaus, and the car service rendered by the Puget Sound Traction, Light & Power Company was grossly inadequate, especially on lines feeding to those yards. Repeated requests by the city authorities for improvement did not bring results satisfactory to the government's local representatives, who were operating free steam trains for the shipyard workers.

Negotiations for the purchase of the electric railways by the city were thereupon opened on Sept. 5, 1918, and an agreement having speedily been reached, the matter was favorably decided by a vote of the people two months later; the ratio being three and a half to one. According to the terms of the contract then, the entire property, including about 195 miles of track, together with rolling stock, carhouses, shops and real estate, passed into possession of the city of Seattle on April 1, 1919. The city issued and tendered in payment $15,000,000 in 5 per cent utility bonds, to be retired in eighteen equal annual installments, beginning March 1, 1922. The contract further stipulated in this connection that a rate of fare must be maintained at all times, high enough to provide sufficient revenue for the payment of both principal and interest.

The superintendent of public utilities immediately took control and proceeded to effect certain economies and improvements in the service. With a few exceptions, all of the employees of the traction company, approximately 2,000 in number, were transferred in a body to the payroll of the municipality, arrangements having been made by the Civil Service Commission to this effect. Two lines, totaling 23 miles in length, which the city had previously owned and operated for five years at an average annual loss of $35,000, were consolidated with the system. Free rides for police and firemen were abolished, and as the ending of the war had fortunately eliminated the problem of abnormal service to the shipyards, it appeared that an opportunity for municipal ownership to assert itself had arrived.

At this time, a 5-cent fare was still in force, it having been established in 1917. But during the first eight months of operation only 92,061,302 passengers were carried, and at the close of 1919 the railway department showed a loss, including bond interest and depreciation, of $517,173. The wage increase, granted to all city employees in October, 1919, automatically included the trainmen, and this of course added to the cost of operation.

In the spring of 1920, a newly-elected mayor replaced the former superintendent of public utilities with an appointee of his own choice, and it soon became evident that the rate of car fare would be raised, in an effort to improve the system's financial condition. The 10-cent cash fare, with four tokens for 25 cents, and free transfers, became effective in July. There was considerable plain talk from the chief executive who intimated that Seattle had bought its lines at an exorbitant figure, under terms of a contract impossible of fulfillment, and experts were called into consultation, but without resulting action. The difficulties were not overcome by the increased fare, for the year 1920 closed with a net loss of $986,327, and an unsatisfactory record of public patronage of the lines.

EMPLOYEES WERE PAID BY "WARRANTS"

Apparently convinced that a larger dose of the "fare raising remedy" was required, the City Council again increased rates in January, 1921. Tokens were thereafter sold at three for a quarter, with the cash fare remaining as before, and transfers free. In March, the first installment of interest on the $15,000,000 bond issue became due, and for the first time the railway department, finding itself unable to finance its payrolls, hoisted the signal of distress. "Warrants" unsupported by funds were therefore issued to the employees, accepted by local banks, and later redeemed by the treasurer when monies became available; a device which has been resorted to on several subsequent occasions.

Jitneys were legislated off the streets in September, 1921, as a measure of protection, but regardless of this and of the unprofitable operation of two lines of auto buses as feeders, the number of passengers carried during the year decreased by more than 20 per cent from the record for 1920. Nevertheless the high fare, together with greater economy in operation had created a margin of profit in 1921 amounting to $363,952.

SEATTLE MUNICIPAL STREET RAILWAY SYSTEM

OPERATION AND MAINTENANCE

	1919*	1920	1921	1922
Ways and structures	$282,992	$455,864	$427,964	$382,803
Equipment	528,507	734,017	579,305	569,563
Power	558,528	683,934	659,748	613,672
Conducting transportation	1,950,460	2,644,291	2,435,899	2,040,453
Traffic, general and miscellaneous	247,377	365,820	300,995	339,895
Depreciation	499,173	677,179	680,629	685,114
Loss on auto bus lines	904	10,738	14,873	(b)
Bond interest and discount (a)	607,424	865,660	866,847	835,538
Total revenues	4,158,153	5,451,175	6,347,175	6,228,130
Net loss (c)	517,173	986,327	.....	.....
Net profit (c)	.....	.....	363,952	710,084
Car-miles operated	.....	.....	15,260,399	15,205,297
Number of passengers	.....	122,866,577	97,519,213	96,406,775
Miles of electric track operated	.....	.....	.....	226.75
Miles of cable track operated	.....	.....	.....	8.32
Number of cars in operating condition	.....	.....	.....	595
Wages of common labor	.....	.....	.....	(d) $4.50 to $5.00
Wages of trainmen	.....	(d) $4.75 to 5.25	.....	(e) $135 to $155

* For 1919, the data includes nine months for the purchased lines, and twelve months in the case of lines previously operated by the city.

(a) Does not include amortization of principal on funded debt.

(b) In 1922 there was also a loss on the bus lines but the bus accounts were not segregated.

(c) For an explanation of these sums, see text.

(d) per day; (e) per month.

In the spring of 1922, the voters decisively defeated a proposition which would have thrown the general tax fund of the city wide open for the use of the railway department. The present Mayor, Dr. E. J. Brown, was elected on a 5-cent fare issue, and in June, 1922, promised the citizens that this boon would be theirs "within ninety days." Just how he planned to bring about a sound and speedy readjustment of the railway's finances in order to render this measure practicable was left largely to the imagination. He proceeded, however, to install his new superintendent of public utilities, and the situation became more prominent than ever. It had been aggravated by reason of the fact that on March 1, 1922, the first installment of the principal of the purchase bonds, $833,000, became due and was paid together with the outstanding interest; an accomplishment attended with considerable embarrassment.

Court decisions resulting from a suit brought by a group of taxpayers now revealed the legal inability of the city to use its general tax fund for the assistance of the transportation lines. This finding was a disap-

First Avenue, Seattle, Is in the Older Business Section of the City. Forty per Cent of the Electric Lines Are Routed Past This Corner

pointment to those who had hoped that the taxpayers, as owners of the system, could be levied on in support of its unstable foundation.

Numerous delays occurred before the fulfillment of the Mayor's campaign promise for a lower fare, but on March 1, 1923, the 5-cent rate became an accomplished fact. A token, sold at the rate of four for 25 cents (or seven cents in cash), carried full transfer privileges. Seattle held its breath and watched for the results of the plunge. Nor had it long to wait before they became manifest. In 1922, the books had shown a profit of $710,084, but this provided for no bond redemption fund. Thus the financial status was by no means a cause for undue jubilation as yet.

Daily losses of from $4,000 to $5,000 were at once encountered during March, although patronage showed a slight increase over the record for the corresponding month of 1922. The net loss for the month was $138,725; a result which created a state of consternation in the City Council.

April brought talk of a return to the previous schedule of fares, it having become apparent that the 5-cent rate would not even meet the requirements for operation and maintenance. This move was opposed by Mayor Brown, who apparently unperturbed, remarked, "I gave the people a 5-cent fare, but if they would rather ride in automobiles than patronize their street cars, I can't help it."

Ten-Cent Cash Fare Restored

As pointing the way toward possible relief, negotiations have been opened with the bondholders, looking toward a rewriting of the purchase contract and an extension of the time for redemption of the securities. These overtures are still in their initial stage, but in order to check the losses resulting from the fare reduction, the Council passed an ordinance on May 14, providing for a return of the cash fare to its previous status of 10 cents, with tokens at three for a quarter, and transfers free. This was in line with an opinion submitted by the superintendent of public utilities, who saw only disaster in the continuance of the low fare. The Mayor vetoed the ordinance. But the Council on June 4 repassed it over the veto, and the restored rates in consequence became effective on June 16. The trainmen and shopmen have recently filed a formal request for a substantial increase in pay for 1924, which, if granted, will add considerably to the operation costs.

Should the riding public be expected to provide a profit sufficient to pay for its street railways in eighteen years? Or is it the function of a municipally owned transportation system to furnish service at cost, leaving the financing of the purchase to be met by the taxpayers as a whole? Both theories have ardent supporters, regardless of the court decisions, and the end of the struggle cannot be foretold.

Meantime, the management is capably endeavoring to provide reasonable service. An increased use of small one-man cars has effected a considerable saving during the past few years, and many cars of the older type have been converted, and are in use successfully. All cars are provided with safety gates or doors. At present, power for operation of the street railways is purchased from the Puget Sound Power & Light Company, but upon completion of the Skagit River hydroelectric development, now under construction by the city, energy will be furnished from there for this and other purposes.

George F. Russell, superintendent of public utilities, exercises supervision over the activities of the municipal railway system, and D. W. Henderson is the railway superintendent in immediate charge.

Popularize the Industry

By E. C. Spring
General Superintendent Lehigh Valley Transit Company

IN REVIEWING the many thoughts and suggestions for getting new business, such as merchandising transportation and other similar schemes that have been presented from time to time, it appears that they can all be crystallized into the single word "popularize." It is a fact that the progress made in creating new railway business has not been satisfactory, many companies showing but slight increases in revenue over a year ago. With the increasing number of other attractive modes of transportation the electric railway is confronted with a problem of no small proportions, but which can be met by intelligent, up-to-date action.

We cannot become inactive and expect the business to come to us. We must go after the business, and like the Jew salesman, find the customer that buys for cash. Let us popularize our individual properties.

Webster, in his definition of the word "popular," gives us the key to possible success. He defines popular as "pertaining to, suitable for, or pleasing to the common people." The combination of these points gives us a solid foundation upon which to build. Our industry from its beginning has been primarily for the common people. So far as "pertaining to the common people" is concerned, the electric railway is popular.

But is the service that we are rendering to the common people suitable and pleasing? This is a question which every manager must ask himself. Is your company and its service popular in its community? Are you personally popular? Are your employees popular? These questions must be answered, and if they cannot be answered in the affirmative something is wrong.

Any commercial article that is a big seller has been made popular in some way by the producer. Any successful man or woman carries with him, or her, a certain degree of popularity. The success of a large corporation is based upon its popularity with the masses. We can go down the line with successes of all kinds and we will find invariably that success and popularity go hand in hand.

How to go about popularizing his own property is a question for the individual manager to work out. The reason that we are not receiving the revenues which belong to us by our vested rights is that other means of transportation are more popular than ours. We must get busy and offset their progress or submit to heavy losses.

One thought that we must not lose sight of, however, is that any mode of transportation teaches the public to ride, and we can benefit by the other fellow's advertising. When the electric railway came into the transportation field it was the cry that the steam railroads were doomed. The electric railways, however, not only demonstrated that they had their own field for operation, but also that they were immense feeders for the steam roads. Instead of losing revenue, the receipts of the latter increased materially. They had the advantage of the advertising done by the electric railways. The same thing, I believe, will hold true in a measure today. Our industry cannot but be benefited by the other transportation activities.

Mid-Western Railway Executives Suggest Ways to Stimulate Summer Riding

PICNICS, parks and publicity are the most promising methods of building up passenger traffic during the summer months, according to the opinion of a number of mid-Western electric railway executives. A diplomatic campaign against the private automobile may accomplish something in this direction, according to some, and others think that the only satisfactory way to make the railway service more popular is to improve its quality.

In the advertising of the Des Moines City Railway, the picnic idea plays an important part. The company calls the attention of its riders to the various places of amusement and interest which can be reached by its lines, suggesting from time to time the advantages of being carried on clean, cool, comfortable street cars to the various parks and picnic grounds rather than having to bother with automobiles and parking troubles. In this connection the difference in cost between riding on the street railway and using private automobiles is emphasized. It is felt, according to E. L. Marriage, assistant to the president, that real progress is being made by this method.

In St. Louis the United Railways makes it a practice to call attention to special amusements by the use of light box signs. No special emphasis is placed upon such activities by B. W. Frauenthal, general traffic agent, because it is thought that most people visiting the various amusement resorts in and near St. Louis ride on the street cars anyway. Display signs calling attention to the zoo, the botanical gardens, horse shows, and exhibitions at the art museum, have been used with some success. The company makes it a rule to advertise only such events as are free to the public.

The Hutchinson Interurban Railway has tried many ways to increase its passenger revenue, but according to J. E. Humbert, general manager, the schooling of the trainmen has borne more fruit than any other scheme. The company is building an attractive picnic park at Carey Lake, but no great increase in riding is expected to result from this. The best way to stimulate traffic, according to Mr. Humbert, is to provide a service which will really attract the people. He believes that the practice of waiting for passengers who are a trifle late to catch a car is worth while on lines with long headways. Near the end of the route, the trainmen make it a practice in inclement weather to pick up inbound passengers on the outbound trip and carry them free to the end of the line, rather than keep these people standing until the car reaches the end of the line and returns.

In Topeka the railway keeps in close touch with various clubs, lodges, Sunday schools, etc., with a view to promoting summer trolley picnics. Field days, outings, band concerts and other open-air attractions are promoted by the railway. These plans have been quite successful, according to A. M. Patten, assistant general manager. At the same time the company calls the attention of motorists to the damage done to tires and exterior finish of automobiles by allowing the machines to stand on hot summer days for a long time in the open. Mention is made also of the fact that the frequent rain showers are a source of expense to motorists by necessitating frequent washing of cars and lubrication of squeaky springs.

Good service is emphasized by R. V. Miller, general manager the Oklahoma Union Railway, as the most effective means of increasing summer riding. It is important to have the cars clean and well ventilated. Passengers like to ride the cars in the summer time when they can get plenty of air. If possible there should be some way of raising the front windows or opening the front door of the car so that there will be plenty of ventilation. The side windows by themselves are hardly sufficient for proper ventilation, according to Mr. Miller.

Originality Marks Publicity of East St. Louis & Suburban Railway

A RATHER remarkable series of advertisements was published in the *East St. Louis Daily Journal* during the year 1922 by the local railway company. The keynote of this publicity campaign may be judged from one of the earlier advertisements in which the company says "In the final analysis men are judged by what they do, rather than by their intentions, but we want you to know what our intentions are, so that if you agree with our policy we may all co-operate for mutual benefit to secure the best results."

Courtesy toward the public is one of the chief points which the company sought to advertise during this campaign. "We have not all of us always been courteous, but we know we particularly desire to be courteous and believe that we have succeeded more than fairly well," is a statement made.

Safety is another point upon which emphasis was placed. The company showed that the number of street car accidents decreased 27 per cent in 1921, compared with 1920. It showed also that there was a reduction in the number of accidents in which automobiles were involved from 237 in 1920 to 220 in 1921. At the same time accidents of all kinds were reduced from 661 to 471, or approximately 35 per cent.

The railway declares its intention, first, to provide a seat in the non-rush hours for every car rider who travels any appreciable distance, and second, in the rush hour to provide sufficient capacity so that the number of standees shall be no larger than the number of passengers seated.

An amusing method of determining the relative cleanliness of different cars was tried by the railway, and this provided copy for several advertisements. One of the good housewives of East St. Louis was asked by the company to ride all the cars she could during several days, and at the end of that time to report to the president of the company the five cars on which the greatest effort toward cleanliness had been made by the motorman or conductor. The company boasts that there were so many clean cars that it was almost impossible for her to decide upon the five cleanest. However, nine operators received special commendation from W. H. Sawyer, president of the company, for their good work in this direction. An unusual feature of the commendation and one that appealed particularly to the platform men was the fact that it was accompanied in each case by a $5 bill.

In another advertisement the public was asked to report to the company any habitual overloading. The financial end was touched upon in statements to the effect that the public is entitled to good service and the company is entitled to a fair return. The outstanding feature of all of these advertisements was a spirit of genuine sincerity and friendliness to the public.

Two Southern Cities to Have Entirely New Rolling Stock

To Demonstrate the Belief that Modern Cars Will Bring Paying Traffic, Old-Type Cars Are Being Replaced with Forty New Double-Truck Cars in Huntington, W. Va., and with Twenty-seven New Single-Truck Cars in Lexington, Ky.

By "Spectator"

IT WAS a great satisfaction for me, on a recent visit to note the unmistakable signs of prosperity in Huntington, W. Va., and Lexington, Ky. In this prosperity the railways in these thriving cities are having their share.

Huntington is making rapid strides as a manufacturing center. The industries are of such character as to require large amounts of power as compared with the number of workers involved. Hence the Consolidated Power & Light Company, of which the Ohio Valley Electric Railway forms a part, is being called upon to furnish increased power without commensurate increases in railway business. The local utility system is one of the most profitable subsidiaries of the Consolidated Electric Power Company (formerly the American Railway), and until recently it held the record for low operating ratio, but has now been passed by the Altoona property. Its railway business is about one-fifth of the total, or say $700,000 out of $3,500,000.

This Substation at Huntington Is Typical of the New Construction by the Local Utility Company

The electric railway mileage in Huntington is small for the area of the city and the population. In the opinion of W. R. Power, general manager of the local property, this mileage is not likely to be increased greatly in the near future, unless such increases are financed by the communities benefited. The transportation problem in the city is rather unique, due to the way in which the city was laid out and to its natural topographical characteristics. The city was founded about fifty years ago by Collis P. Huntington, the steam railroad magnate, and his colleagues. The site was selected with great care and the city plan was developed in the light of the best engineering knowledge of the time. While the founders apparently did not visualize a city as large as the present one, provisions were made for almost unlimited growth. This growth, however, must be largely in a longitudinal direction because the city stretches along the Ohio River between it and a range of hills too steep for general residence purposes. The plan provided for wide longitudinal avenues, and reasonably wide cross streets with extra wide ones at intervals. Where the original plan has been adhered to the results have been excellent. The city now has a length of about 10 miles and a width of from 1 to 2 miles.

From the electric railway standpoint it is evident that with this long narrow form of the city, the transportation requirements are largely parallel with the river, and few lines are needed to cover the city sufficiently. Crosstown traffic is obviously of relatively little importance.

Another important factor is this: Huntington is a young city, comparatively, and its greatest growth has been in recent years. During the boom days of the electric railway, say from 1890 to 1905, the city needed little mileage and promoters of the day did not see much chance for profit in extending the lines out into the country. When the active growth began it was too late, the electric railways of the country having settled down to intensive development of what they had, rather than further extension.

The local situation has also been strongly affected by the automobile. The wide streets, beautiful surroundings and industrial prosperity have combined to induce large use of this vehicle. I was told that there were at least 7,000 machines in the city, with the number increasing rapidly. Based on a recent school census, and allowing four and one-half inhabitants per school pupil, the population of the city is now about 75,000. Hence there is nearly one automobile for each two families of five persons each. Not only do the Huntingtonians have automobiles, but they use them, because the streets afford liberal parking space.

With conditions so favorable for automobile competition the railway has been hard put to furnish profitable service. From the standpoint of profit it has been fortunate that the electric railway mileage was not more than it is. The company has realized, however, that something must be done to improve the service

radically and has arranged with the parent company for an entirely new outfit of city cars, numbering forty. Mr. Power had hoped to secure fifty, but it was decided that ten of the old-type cars could well be retained to serve as "extras." The new cars are light, double-truck cars, arranged for either one-man or two-man operation. Their weight is about 23,000 lb. and they are provided with all of the comforts and conveniences of the modern-type car designed to attract patronage. They are being constructed at the Brill works.

The parent company is giving the Huntington management an opportunity to demonstrate what can be done by giving the public the best service that modern practice affords. The matter has, therefore, more than local significance.

The Consolidated Power & Light Company is doing more than furnishing Huntington with new cars and improved railway service. It is spending $1,000,000 on its power plant at Kenova, near by. Further expenditure is anticipated when the present improvements are completed. The power plant is being enlarged to meet the unprecedented demand for power service. The increased capacity is being absorbed as rapidly as provided. One new customer this year will furnish $500,000 worth of business per annum. The present power plant is the result of gradual evolution and hence contains assorted equipment. Part of the improvement will be gradually to modernize the station. The present work will constitute a long step in that direction. Substation design and construction are also receiving attention.

Flower Beds Are Not Considered Inconsistent with Good Maintenance at the Huntington Shops

A Snapshot of One of the New City Cars Taken Near the Paris Interurban Terminal

An integral part of the Huntington property is the railway and power utility in the nearby city of Ashland, Ky. The two cities are connected by an interurban line belonging to the company and crossing the Big Sandy River. Ashland has many of the characteristics of Huntington, with broad streets and attractive surroundings. It is also an industrial center, having a population about one-fifth that of Huntington.

Lexington Will Have New Cars Also

Lexington, Ky., is a city about two-thirds the size of Huntington. The two cities are comparable as far as size and character of population are concerned, but they present many contrasts in other respects. They have this in common, however, that they are both being re-outfitted with new cars of advanced design.

There is practically no manufacturing in Lexington, its prosperity coming from the fact that it is the center of a rich farming country. It is surrounded with small thriving cities between which and Lexington the local railway, operated by the Kentucky Traction & Terminal Company, furnishes admirable interurban service.

The transportation situation in Lexington must be considered in connection with the interurban business. The local traffic is not dense enough to support service with large two-man cars, and some years ago the company remodeled a number of single-truck cars and put them into service under one-man operation. They were recognized as a makeshift, pending the time when modern types of cars could be afforded. This time has now arrived, and, encouraged by its success with more than a year of one-man operation of its light interurban cars, the company is discarding all of the present city cars, replacing them with new safety cars.

The new cars are being built by the Cincinnati Car Company and equipped with the safety apparatus devised by John Sutherland of Davenport, Iowa. Every practicable feature has been incorporated to render the service attractive. For example, the seats are furnished with plush-covered spring cushions and backs; the seats are spaced so as to give liberal knee room, which is further increased by the recessing of the rear of the seat backs; stanchions are provided at convenient points for the convenience of standing passengers, and the body is trimmed and painted to give a pleasing effect. A unique feature of the car is that it is operated front-entrance, rear-exit. There is no turnstile or other device at the rear to prevent passengers from boarding, but trouble from fraud in this direction is not anticipated. The city has a predominately native population, and experience with over-riding on the interurban lines indicates that little loss is to be expected on the new city cars from dishonesty. The motorman has separate control of the rear door and is provided with outside and inside mirrors so that he can readily supervise the use of the rear door for exit purposes.

The general manager of the company, J. P. Pope, is confident that many of the elements which have made the interurban service such a success will act also in the case of the new city service.

More than a year of service with the lightweight interurban cars has demonstrated that, under such conditions as exist around Lexington at least, a one-man

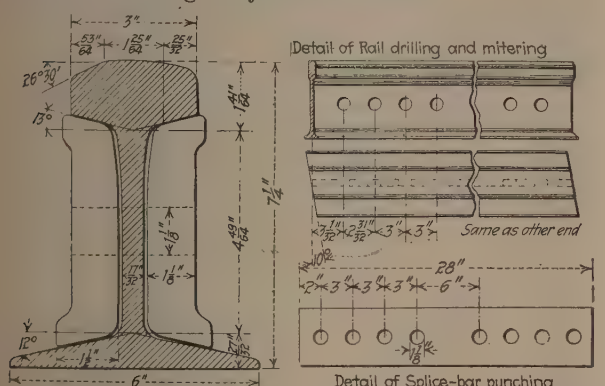
double-truck car is well adapted to reasonably high-speed interurban transportation. Data for the first year's operation show a doubling of the net revenues from the interurban lines and material reduction in practically all elements of operating cost.

The complete elimination of bus competition was a notable victory for the new interurban cars. Hourly service is given, with a schedule speed of between 19 and 20 m.p.h. The car leaving Lexington on the hour reaches Nicholasville, 12 9/10 miles away, forty minutes later, making five stops between. From Lexington to Georgetown, 12 8/10 miles away, the time is forty-five minutes, with six stops between. Paris, 17 8/10 miles from Lexington, is reached in fifty-five minutes, with four intermediate stops. Frankfort, the State capital, 14½ miles away, is reached in forty minutes, with three intermediate stops between. These interurban lines cover the noted blue-grass country and in good weather riding is popular for recreation, while the interurban traffic is good in all seasons.

As in the case of Huntington, the Lexington company does a considerable power business, not so large, however, in proportion to the total. A profitable side line is the manufacture of ice which is distributed as well as made by the company. The company owns and operates Blue Grass Park, located a few miles from the city on one of the interurban lines. While this park attracts considerable patronage it is not a particularly profitable side line for the company.

Mitered Rail Joints in Cleveland

FOR the past year the Cleveland Railway has been using mitered joints for its city tracks, and the connection made is so good that it is very difficult in most places to tell by observation where the joints are in the track. The mitering is on an angle of 10 deg. Besides being mitered, the ends of the rails are undercut 1/32 of an inch. For this extra work of mitering and undercutting on the ends of the rail, the company pays 50 cents extra per ton. A section of the standard rail used is shown in the accompanying drawing. The method of making the joint is as follows:



Standard Cleveland Rail (L. S. 102-516) with Splice Bar Used with a 10-Deg. Mitered Joint

After the rails are butted close together and the splice bars are laid out, a drift pin is set in through the bolt hole in each rail nearest to the joint. These holes are 3 3/32 in. from the end of the rail, as shown in the drawing, while in the splice bar the two holes are only 6 in. apart. This allows a 1/16 in. draw and closes the joint when the drift pins are driven in.

Before the drift pins are driven in place, the splice bars are bolted up, but as the holes in the splice bar are not exactly opposite the holes in the rail, 1-in. bolts are used in the 1⅛-in. holes. The drift pins are then driven in. If there should then be any space between the ends of the rails, the drift pins are taken out, a shim is inserted, and the drift pins are again driven in place. The next step is to take out the 1-in. bolts one by one and the drift pins and insert 1⅛-in. rivets. Then the splice bar is seam welded to the rail and the rail to the base plate.

In this process the seam weld is carried all the way across on the top of the splice bar, but in the bottom seam a 3-in. gap is left in the welding around the joints to take up any little give that might occur at that point.

This joint was developed by Charles H. Clark, engineer maintenance of way of the company. The undercutting of the rail and the drift pin method of making the joint have been used for a number of years, but mitering was introduced, as mentioned, in 1922.

Price Changes in German Railway Materials

A TABULATION is made in a recent issue of *Verkehrstechnik* showing the comparative price of various materials used by railways in Germany before the war and the price as of June 29, 1923 for the same articles. The figures make us smile, but for the German it is tragic. Perhaps we can console ourselves by looking at these figures, when we reflect on what a dollar used to buy.

Material	Measure	Price Before the War, Marks	Price June 29, 1923, Marks	Percentage, Increase
Coal briquettes	Ton	12.50	966,900	7,735,000
Lump coal	Ton	12	698,100	5,817,500
Wrought iron	Ton	93.50	5,200,000	5,561,500
Rolled forms	Ton	107	6,300,000	5,887,800
Electrolytic copper	Kilogram	1.34	51,570	3,848,500
Lead	Kilogram	.39	18,750	4,807,700
Zinc	Kilogram	.45	20,750	4,611,100
Tin	Kilogram	3.27	141,500	4,327,200
Machine oil	Kilogram	.26	13,000	5,000,000
Petroleum	Kilogram	.26	6,100	2,346,000

In the meantime street railway fares have increased from one-tenth of a mark to 1,200 marks—an increase of 120,000 per cent. The article mentions also the increased price of foodstuffs. These figures in general show a smaller proportion of increase than the price of electric railway material. It is interesting to note that the price of beer has advanced in the same ratio as the average street railway fares in Germany.

Eliminating Sludge in Turbine Lubrication

FOR some months researches have been under way in the laboratory of the Carnegie Institute of Technology at Pittsburgh to determine the factors causing sludge to form in the lubricating system of turbines and to determine methods for eliminating the sludge. The preliminary experiments showed that all of the sludge compounds examined contained fatty acids, proving that the hydrocarbons of the mineral oils had been oxidized. These fatty acids were usually present in the form of metallic soaps. Examination of the sludges led to the belief that these soaps form the greases which comprise the major portion of most of the sludges.

Association News & Discussions

Wired Wireless Over Power Lines*

High Frequency Automatic Telephony as Applied to Railway and Central Station Service Has Practical Possibilities in Load Dispatching

BY C. A. BODDIE,
Radio Engineer, Westinghouse Electric & Mfg. Co.

HIGH frequency telephony has now been developed to the point where it can be used successfully for communication over high tension power lines. Companies in the past have had difficulty in maintaining satisfactory communication over their private telephone lines when carried on the same poles as the power line. Telephone lines directly exposed to such high voltage are invariably noisy. The power line affords a dependable medium of communication superior in mechanical strength to any telephone line which can be constructed. This new method has demonstrated its superiority over the wire telephone during storms.

Super-position is the fundamental principle on which high-frequency telephony is based. The equipment used is substantially the same as that used in radio. The superimposed high frequency currents are introduced into the power line by an antenna wire carried on the same pole. Separate antennæ are used for transmitting and receiving, with the former preferably above the latter. By this means high frequency currents are induced in the transmission line.

For this class of work frequencies between 30,000 cycles and 150,000 cycles are the most desirable. The lower frequencies are best suited to long distance communications, while the higher frequencies do well for short distances. The system is duplex, that is, it provides for simultaneous talking and listening, as with the usual wire telephone. In this respect it is superior to radio, as it is impossible to send and receive simultaneously with the latter.

In striking contrast to wire telephone communication with its relatively high efficiency, only an infinitesimal part of the transmitter output of radio apparatus ever reaches the desired receiver. The efficiency of a power line for the transmission of high frequency current is somewhat better than ordinary radio, but still inferior to the wire telephone.

Each station is provided with an automatic telephone desk set, including an automatic call dial, a bell, megaphone and receiver. The operation of calling is accomplished by dialing the desired number on the automatic dial exactly as is done with the ordinary telephone of an automatic wire exchange. The use of a selector which closes only after receiving the proper impulse, makes it possible to call any particular party along the power line to the exclusion of all other parties. By the installation of an extra selector at each station provision may be made for a general call. This is a feature of considerable value to a load dispatcher.

Two wave lengths are ordinarily used, one for transmitting and one for receiving. The dispatcher may transmit at 50,000-cycles and all his stations are tuned to receive at this frequency. The latter are then arranged to transmit at 60,000-cycles, so that the dispatcher by means of his selective calling system can communicate with any station, but the outlying stations cannot communicate with each other. Since they all transit at 60,000-cycles and none are tuned to receive it, this makes it necessary for all stations to clear through the dispatcher, which is the normal and desirable method of operating a dispatching system. If, however, it is desired to permit the outlying stations to communicate between themselves, this can be done by changing the wave length adjustment of the calling station to agree with that assigned normally to the dispatcher.

*Abstract of a Paper Presented Before the Central Electric Railway Association at Cedar Point, Ohio, July 20.

New England Men Take Outing, Enjoy Day at Canobie Lake

NEW ENGLAND street railway men to a number of about 300, took a day off on July 26 to celebrate their annual outing, which was held this year at Canobie Lake Park, the pleasure resort of the Massachusetts Northeastern Street Railway. An extensive and pleasurable program had been drafted by the committee on arrangements, of which R. D. Hood, president of the club and vice-president and general manager of the Massachusetts Northeastern Street Railway, was chairman. The attendance mentioned, 300, is said to be larger than at any previous outing of the club.

People came by automobiles, electric cars and buses. The morning and afternoon were given over to various athletic contests, of which the outstanding event was the annual ball game between the railway men and the supply men. Edward Dana was manager of the railway team and Charles Wood of the supply team, and the costumes worn were weird. The railway men won by a score of four runs to three in a game of four innings. Those who wished to play golf had an opportunity to play at the Merrimac Valley Country Club.

The meeting ended with a chicken and lobster dinner in the dining room.

The committee on arrangements, besides President Hood, who acted as chairman, was David A. Belden, reception; Howard Fritch, attendance; H. B. Potter, transportation; F. E. Webster, lunch and dinner; E. H. Wilkinson, sports and prizes; J. W. Belling, secretary.

Maryland Utilities Organize

Initial Meeting Instigated by Public Service Commission and Delegates Are Guests of the Governor

TO PERFECT the organization of the Maryland Public Utilities Association, representatives of fifty-three utility companies met with the State Public Service Commission, July 26, in the chamber of the House of Delegates, at Annapolis, Md. In that room where so many of the State's laws are made, the officials of the Maryland public utilities, having the hearty co-operation of the men who represent the public in their affairs and regulate rates, wrote a new chapter in the moral laws of the State. And this new law, all the more stringent because of its origin, is the crystallization of sentiment of those who manage Maryland's public utilities today, as embodied in the word —service.

In his address to the members of the association, Governor Albert C. Ritchie, spoke of that "Service." In fact, he suggested that the Association should substitute the name "Service" for "Utilities" in its corporate title so that the Association's very name would bespeak the aims of the officials and employees of the companies composing the Association.

Service, said the Governor, meant the realization by officials of public utilities that they are servants of the public or quasi-public officials. Their duties to the public are as high as, and even more intimate than, the duties of public officials duly elected by the people. People today depend so much in the daily routine of their lives upon the water, gas, electricity and railway companies that the service these corporations render must be of the right kind; it should be constant, honest and courteous. The Governor declared that the meeting was one of the most progressive steps the State had taken in years and he urged upon the representatives

present that they take the people more and more into their confidence.

Emory L. Coblentz, president of the association and president Potomac Service Company, Frederick, Md., emphasized the value of co-operation with the public and showed the pleasure he felt because of the interest aroused. "Through our organization," he said, "every utility in the State may gather lessons which other organizations have learned through hard experience. The Public Service Commission, which really started the move, will have its work lightened when it works with an organization whose sole aim is service. We can now adjust many of our minor troubles, and, what is more important, we may avoid many of them."

Excoriating the "public-be-damned" policy which unfortunately appeared to be the attitude of a good many public utility companies until recently, Charles M. Cohn, vice-president of the Consolidated Gas, Electric Light and Power Company, Baltimore, spoke of the rapid progress that could be made through co-operation. "The public-be-damned spirit of our forefathers is antique and not wise in our day," Mr. Cohn said. "I have seen this tried. Our lines of business will never run with any smoothness until we have learned a lesson in common courtesy and have forced our employees to follow our example. We cannot successfully disregard our customers' feelings any more than a merchant in a highly competitive business can."

Among other speakers were: C. D. Emmons, president United Railways & Electric Company, Baltimore, and president American Electric Railway Association; Labert St. Clair, director advertising section, American Electric Railway Association, and George W. Oxley, National Electric Light Association, and representatives of the gas, telephone and electric light companies.

The matter of dues was settled upon to run from $10 to $700 a year per company, in proportion to gross earnings ranging from less than $10,000 to more than $5,000,000.

Permanent headquarters for the organization were chosen at the Engineers' Club, Baltimore. Governor Ritchie entertained the entire delegation at a luncheon held in the Executive Mansion.

Three-wire Distribution for Electric Railways

IN A paper presented before the Winnipeg branch of the Engineering Institute of Canada Feb. 15, 1923, W. Nelson Smith, consulting electrical engineer Winnipeg Electric Railway, discussed the three-wire system of distribution. This has been applied for the mitigation of electrolysis on electric railways where the installation of the other recognized methods of mitigation, such as increase in the frequency of substations and the negative drainage system, is prohibitive on account of the cost.

In the paper the writer reviews the theoretical study made by E. R. Shepard of the United States Bureau of Standards. The method of sectionalizing the trolley is favored to limit the flow of current in the neutral. In Winnipeg, which has very light track rails, weighing in many cases only 60 to 70 lb. per yard, the sections are between 800 ft. and 2,700 ft. in the central portion of the city. Automatic reverse-current switches are installed in the neutral so that when the drainage current reverses so as to draw stray current from the underground structures the circuit is opened. By this means the drainage of underground pipe systems has been entirely avoided in the Winnipeg installation.

The paper has been printed in full in the *Engineering Journal* for May and in the *Sibley Journal of Engineering* for May and June.

American Association News

Engineering Association Nominations

THE committee on nominations of the Engineering Association, consisting of F. R. Phillips, chairman, C. A. Greenidge, C. S. Kimball, F. H. Miller and S. Withington, has submitted the following names for the offices to be filled:

For president, H. A. Johnson, assistant to general manager Metropolitan West Side Elevated Railway, Chicago.

For first vice-president, C. H. Clark, engineer maintenance of way, Cleveland Railway.

For second vice-president, R. C. Cram, engineer surface roadway, Brooklyn-Manhattan Transit Corporation.

For third vice-president, C. R. Harte, construction engineer The Connecticut Company.

For secretary, J. W. Welsh, executive secretary American Electric Railway Association.

Members for executive committee: Daniel Durie, general superintendent West Penn Railways, Connellsville, Pa.; R. H. Dalgleish, chief engineer Capital Traction Company, Washington, D. C.; E. H. Scofield, engineer power and equipment, Twin City Rapid Transit Company, Minneapolis, Minn., M. B. Rosevear, superintendent of distribution, Public Service Railway, Newark, N. J.

Insurance Committee

THE Insurance Committee of the American Electric Railway Association met in Cleveland on July 12. The report which is to be presented at the convention in October was completed and sent to the executive committee for approval. Those present at the meeting were John T. Staub, chairman; Granville H. Bourne, N. H. Daniels and John H. Moran.

Special Taxes

THE committee on special taxes of the American Association was held in New York City on July 31. Those present were W. H. Maltbie, chairman; A. G. Neal and F. W. Doolittle, representing Edwin Gruhl. The tentative report of the committee was read and discussed. A questionnaire had been sent out to get information covering the various kinds of taxation levied, and to some extent the total amount of such taxes in the United States, to show the burden carried by the industry. The report contains a discussion of the federal income and excess profit taxes, the conflict between state and Federal regulations on depreciation in connection with taxation, problems of state and local taxation, and special imposts for particular purposes such as paving, etc.

Standard Classification of Accounts

THE Accountants' Association committee on standard classification of accounts met in New York on July 17. Members present were R. N. Wallis, chairman; M. W. Glover, H. L. Wilson and M. R. Boylan for P. S. Young.

Mr. Glover had previously prepared and presented for the consideration of the committee a standard classification of accounts for motor vehicle operation, which was based to some extent on the accounting systems used by motor bus companies, while it also followed the general trend of electric railway classification of accounts. The committee discussed this proposed classification of accounts and proposed a number of revisions. It was felt that it would be desirable, so far as possible, to adhere to the arrangement of items in the electric railway accounts, modifying such items as necessary to apply to vehicle operation. Mr. Boylan agreed to revise the proposed classification in line with the discussion, and to submit it to committee members for further comment and criticism.

Cost of Highways

THE committee of the American Association on cost of construction and maintenance of highways, W. J. Harvie, chairman, held a meeting at association headquarters on July 25. A tentative report was drafted for presentation at the October convention. Data has been collected by the committee covering the costs of highways in various states through the co-operation of member companies, although on account of the incomplete methods of keeping records in some states the list does not cover some of the states. What information is available will be included in the report.

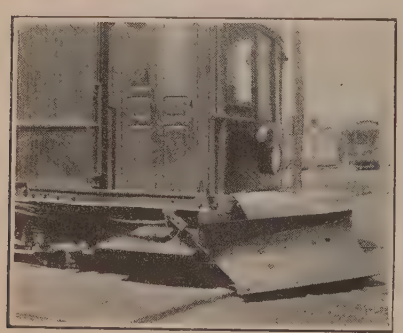
Maintenance of Equipment

Fan Ventilator in Hartford

THE machine shop in the repair shops of the Connecticut Company at Hartford was installed some years ago when belting and shafting were used to a much greater extent than at present. A number of the machines are motor driven, but the fact that there is an overhead shaft has enabled the company to put in a simple overhead fan for keeping the air moving. It consists of a kind of paddle wheel, made up of wooden hub with two arms, each about 2½ ft. long, with a wide paddle on the end of arm. These keep the air moving, and as the hub is split and bolted to the shaft, the fan can be removed in winter.

Demountable Nose for Emergency Car

DURING stormy weather when an emergency car is needed, it is very important that the car reach its destination promptly. In order to provide for clearing its own track and also to serve in snow removal as needed, the Easton division of the Lehigh Valley Transit Company has designed a snow nose for its emergency car, which can be attached and detached in three minutes.



Nose on Emergency Car

The nose is made of sheet steel and shaped so as to throw the snow clear of the running rail. An angle-iron framework gives strength and has provision for support. The nose is held in position by threaded rods with turnbuckles. There are three of these, one in the center and one at each end. The front end of the emergency car has been strengthened with a T-rail, and the turnbuckles with their rods are fastened to this, forming a strong support. In order to prevent snow from getting in over the top of the nose a sheet iron protection is provided.

Storing Repaired Armatures on a Level Bench

AFTER careful study of all methods of storing repaired armatures, the Virginia Railway & Power Company has concluded that horizontal storage is the most convenient in its shop at Norfolk.

As shown in the illustration below,

The Men in the Electric Railway Shop at Norfolk Prefer to Store Their Armatures on a Bench About 3 Ft. Above the Floor

a long, stout bench is provided in the commodious armature section of the shop. This is of a height to bring the shaft of the motor to about 3 ft. above the floor, a height which facilitates the fitting of bearings to the journals. In fact, one of the chief advantages of this method of storage is that bearings may be fitted to any journals of armatures on the bench, without disturbing others. The arrangement also makes it easy to pick up any armature by means of the gib cranes and trolley-bar hoists, with which the shop is liberally equipped.

While the bench described above is primarily for armatures, the space below the table is by no means wasted. Shelves fitted between the legs at proper height are convenient for storing field coils, resistors, etc.

The horseshoe nailed to the near end of the bench is symbolic of the atmosphere of this cheerful shop.

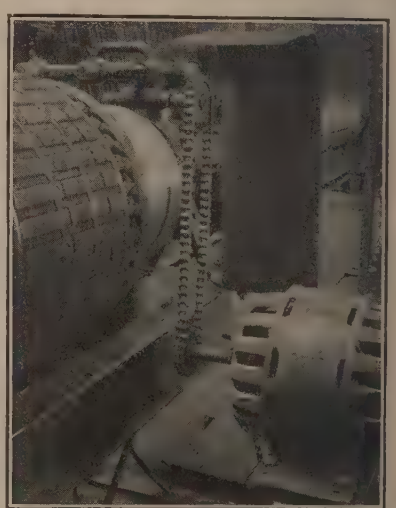
Commutator Slotter with Chain Drive

A MACHINE for undercutting commutators of electric railway motors which is giving good results in the shops of the Terre Haute Traction & Light Company is driven by an electric motor through a bicycle chain.

In this device a 1¼-in. saw is mounted on one end of an arbor which carries on the other end a pinion with the same number of teeth as that on the motor shaft. The arbor is carried in a long bearing which forms part of a carriage sliding on two round rods. These rods are in turn supported from a substantial pedestal bolted to two I-beams which form from the bed of the machine. A handle is cast together with the carriage for the convenience of the operator. Stop collars on the rods limit the stroke of the saw. A sheet-iron housing is placed over the chain on the side toward the operator.

Provision is made for adjustment of the saw arbor to accommodate commutators of different diameters, by an adjusting screw which is mounted under the motor table. This permits it to be raised and lowered. One chain therefore serves for all commutator diameters.

The saw is run in such a direction



A Commutator Slotter Which Is Giving Good Results in Terre Haute

that the chips are lifted out of the slot, that is, the advance side of the saw travels upward. This minimizes the danger of leaving chips in the slot.

Reel for Transfer Table

For an inside flush transfer table, serving only a few tracks, a more convenient source of current supply than an overhead wire is desirable in many cases. When power is taken from above, the longitudinal wires in the carhouse have to be cut to provide for the transfer table wire at right angles to them, or else there must be a right-angle frog in each wire. Again the trolley pole has to be turned every time that the direction of the transfer table is reversed.

All these objections are overcome by a method used in the Grand Avenue carhouse of the Connecticut Company in New Haven. Here the cable supplying power to the transfer table motor is coiled on a reel close to the ceiling at one end of the transfer table run, and the cable between this reel and the transfer table is kept taut by means of a weight operating over a reel on the same shaft as the cable reel but smaller in diameter.

The other end of the cable is attached to a post on the transfer table, the post being about 7 ft. high, so as to clear the head of any operator working the table. The runway is about 40 ft., so that only about this amount of cable is required for operating the table.

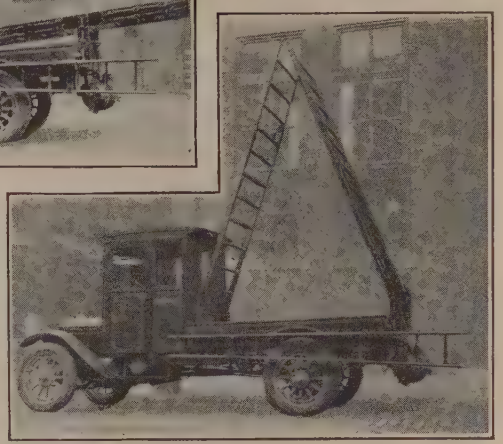
The device has been in use for many years at the Grand Avenue carhouse, and has proved very satisfactory.

A Quick-Action Ladder Truck

ALWAYS standing near the operating headquarters of the Nashville Railway & Light Company, when not out on the line, is an emergency ladder truck, which combines effectiveness and simplicity. The truck comprises a light wagon body with an inclosed cab for the driver. On the body is a pair of 12-ft. ladders, so mounted that they can be folded together and laid lengthwise over the body without taking up any of the useful space therein.

This Ladder Truck Is a Time Saver in Nashville. When Folded the Ladders Occupy Practically No Useful Space on the Truck

The Ladders Are Hinged at the Top and One at the Bottom Front End



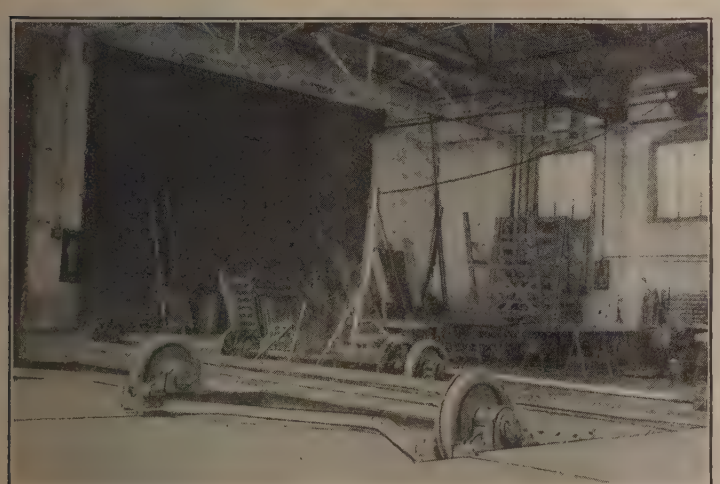
Referring to the illustration at the right, which shows the truck, it will be noted that the ladders are hinged together at the top and the lower end of one is hinged at the front of the body and about 6 in. above the side boards. The lower end of the other ladder is hooked onto a crossbar supported by steel straps at the rear of the side boards.

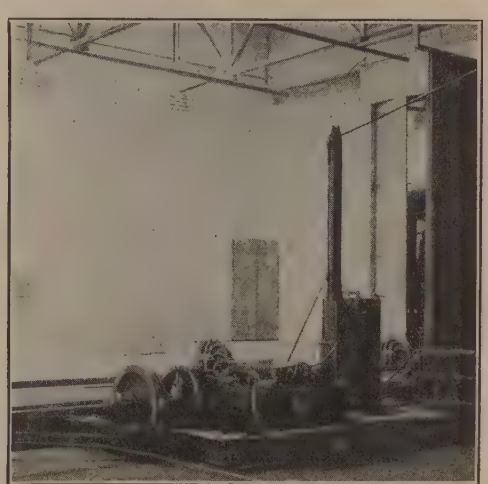
To fold and lower the ladders, all that is necessary is to unhook the bottom of the rear section and shove it forward. The folded pair then rests on the same crossbar which serves to support the rear one when the ladders are raised. The operation of raising or lowering occupies but a few seconds.

As a supplement to the inverted-V ladder, a light auxiliary ladder is carried on hooks on the side of the body.

Ratchet Socket Wrenches Facilitate Repair Work

THE West Penn Railways, Connellsville, Pa., has found that socket wrenches of the ordinary type are quite difficult to handle in restricted places. To overcome this, Daniel Durie, general superintendent, has designed a ratchet socket wrench which is being made standard for the company. This consists of a standard ratchet wrench, to which is attached by a through bolt a socket wrench of the ordinary type. Wrenches of this type have been provided for various sized nuts and of

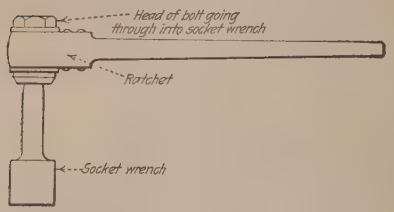




Power for This Transfer Table Is Supplied By a Cable Coiled on a Reel

various lengths covering all of the different work done in the shop. The wrenches are kept on a wall board so that the workmen have little difficulty in selecting the correct wrench for any particular job.

The great advantage of the ratchet

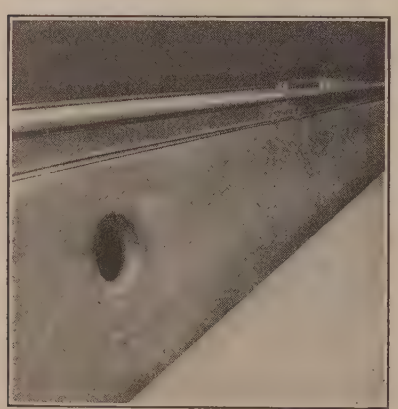


A Socket Wrench Is Combined with a Standard Ratchet used for Drilling

wrench is that a very small movement of the handle will enable the ratchet to move forward one notch so that the bolts can be tightened or loosened in places where it would be entirely impossible to work with the ordinary hexagonal or square socket wrench.

Warm Air Is Useful in the Pit

AN INGENIOUS method of heating the overhauling shop is that used by the Consolidated Electric Light, Heat & Power Company (Ohio Valley Electric Railway) in Huntington, W. Va. Warm air is delivered by a ventilating fan through 15-in. tile ducts laid in the spaces between the pits in the shop; branching from the large ducts are 12-in. tile ducts which open into the pits about 25 ft. apart. Warm air thus delivered is well distributed through the shop, and if a car comes in wet



In Huntington Railway Rolling Stock Is Heated with Air Forced Out Through 12-In. Outlets in the Pit Walls

or covered with snow and ice, it will be quickly dried out if it is stopped over one of the duct outlets.

A feature of the heating and ventilating system in this shop is the reuse of the air from the shop rather than the drawing in of fresh air from outside. This economy is said to save an appreciable amount of coal each year.

A Substantial Carrier for the Boring Bar

IN THE machine shop of the Knoxville Power & Light Company, a number of ingenious devices have been adapted to the excellent machine tools with which this shop is equipped. These devices are due to collaboration between J. M. Kingston, master mechanic, and W. C. Duggan, foreman of the machine shop.

Among these devices is a boring-

Four Sizes of Boring Bars Can Be Used with This Clamping Device

bar holder which fits into the lathe carriage in place of the tool post. It consists of three principal parts, a plate grooved out at the two upper corners to fit into the groove in the carriage, and two clamping blocks bored to accommodate the largest two boring bars to be used. When a boring bar is placed between the clamps, it is held securely in position and the clamp is drawn down tight on the carriage by means of two bolts passing through the clamp and into the grooved plate first mentioned.

The bars used in connection with this holder are threaded on one end and nuts slotted to hold the tools are tightened against the end of the bars by means of a special wrench, which is visible in the picture lying in front of the clamps. This wrench is bored to fit all of the boring bars used and a diagonal slot is cut across the face of the wrench through the center of each circle. When this wrench is slipped over the nuts, the cutters are engaged with the groove so that the nut can be tightened, clamping the cutters firmly in position.

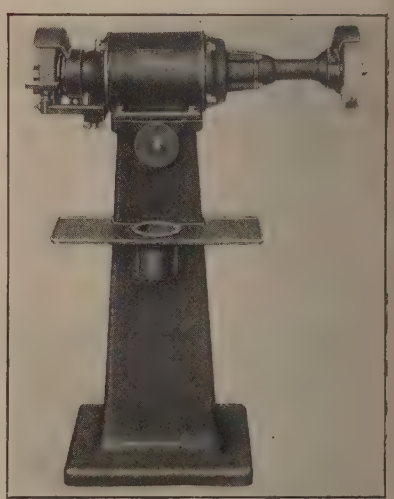
As the holes in the wrench indicate, four sizes of bars are used with this device. Because the boring bar holder is arranged to clamp but two different sizes, when the smaller two bars are used the holes in the clamp are bushed.

These boring bars are used for boring gears, pinions, bearings or anything else that can be bored out in the chuck of a lathe.

New Equipment Available

Combination Grinder and Buffer

A NEW design of machine for grinding and buffing is being marketed by the Hisey-Wolf Co., of Cincinnati, Ohio. This machine is particularly useful for a large variety of work requiring the use of a grinding wheel, buffing wheel, wire brush wheel or rotary wire rasp



New Design Machine for Grinding and Buffing

wheel. The spindle extension is a separate unit and is connected to the motor armature shaft by a clutch. The shaft unit is supported by two ball bearings which provide a very rigid construction. The 1-hp. size machine is made for direct-current operation. It has a no load speed of 3,200 r.p.m. and uses an 8-in. x ½-in. grinding or buffing wheel.

The News of the Industry

Transit Funds to Be Merged

Proposal to Be Voted Upon in Philadelphia Sept. 18—Arch Street Loop Contract Let

The City Council of Philadelphia on July 27 passed the referendum ordinance which provides for the submission to the people at the primaries on Sept. 18 the question whether the funds hitherto authorized by the people for various transit programs should be merged in the project designated as "Step 1." Although the vote was sixteen to one Richard Weglein, president of the Council, said that he had hoped the vote would be unanimous, that the Council had now taken all measures possible to give relief to the car riders who had been complaining for a long time. Further he hoped that the engineers would get together in the near future to make an early start on the great work as soon as the people had expressed their will in the matter.

All Funds Consolidated

The ordinance which the Council approved will combine all the available separate funds heretofore authorized for transit purposes into one for the construction of "Step 1" of the high-speed transit program. That step includes the construction of the Broad Street subway, the delivery loop down Ridge Avenue and around Eighth Street, and then out Walnut and Chestnut Streets to Forty-second Street and Woodland Avenue where it would become an elevated structure to Darby. These funds total about $42,000,000.

In presenting the bill President Weglein briefly told about the creation of the commission and its subsequent activities for the adoption of the so-called "Step 1" of the transit program. He emphasized the fact that the ordinance had nothing to do with the suggested Chestnut Street surface-subway project.

Included in the referendum is the $7,500,000 previously authorized for a Parkway subway—Twenty-ninth Street-Roxborough elevated line. He said that this $7,500,000 was again incorporated in the referendum for the Northwest lines with a change which will enable a subway to be built in whole or in part where an elevated was at present authorized. This suggestion was made by him because he believed that while elevated roads were cheaper in their initial cost, their upkeep was more expensive and their life more limited than a subway. Further, the plans for the line in Forty-second Street were changed from an elevated to a subway in recognition of the fact that property owners protested that elevated roads depreciated strictly residential neighborhoods without corresponding compensation.

The Council will meet on Aug. 7 to receive Mayor Moore's decision on the referendum ordinance. It is anticipated that he will veto the measure.

While the Council was acting on the comprehensive transit program, Mayor Moore awarded a contract for the building of the Arch Street loop for $1,199,555 to the Keystone State Construction Company. The loop is not a part of "Step 1" of the transit plans as approved by the Councilmanic Transit Commission.

Scarcely had Mayor Moore finished signing the contract for the construction of the proposed Arch Street subway when a taxpayer's suit was filed blocking all work on the project until Aug. 6. The suit is based upon the allegation that the Keystone State Construction Company, which received the contract, was not the low bidder and that the firm making the lowest figure had been ignored.

Chicago Elevated Pay Increased Three Cents

Employees of the Chicago Elevated Railroads will receive an increase in wages of 3 cents an hour for the year ending June 30, 1924, and an additional 2 cents an hour increase for the twelve months period after that date.

This wage award was made by the arbitration board, which settled the wage dispute between the employees and the railroad. The rate of pay increase is the same as fixed recently for employees of the Chicago Surface Lines.

The new 1923 scale in cents per hour for trainmen on the Elevated was fixed as follows: Motormen, 75 cents; conductors, 70 cents; guards, 68 cents; extra guards, 67 cents.

This award is retroactive and the back pay, due from June 1, 1922, will be paid on the pay day for the second half of August. The new rate will be paid on the pay day for the first half of August.

On the basis of 250 hours per month, average put in by trainmen (extra guards excepted) the men will have $7.50 extra in their envelopes for the second half of August, a similar addition each month for the coming year and an additional $5 a month beginning June 1, 1924.

The men asked for an increase of 10 cents an hour, which would have put their pay back at the figure they attained in 1920 and which was reduced a year ago.

$84,000,000 Program

28 Miles of Long Island Railroad to Be Electrified as First Step in Vast Improvements

The Long Island Railroad will extend its electric zone from Jamaica to Babylon on the Montauk Division by July, 1924. This means about 28 miles of double-track electrification. This statement was recently made by George Le Boutillier, vice-president of the Long Island Railroad, at a "get together" meeting of the Long Island Press Association, the Long Island Association and the Long Island Railroad at Patchogue. He said that the company had mapped out a ten-year improvement program which called for the expenditure of upward of $84,000,000. This is more than the railroad's present total investment in road and equipment. He believes that the money will be forthcoming as he claims the railroad is earning a profit and its credit has been restored.

Mr. Le Boutillier reviewed the history of the Long Island Railroad from the time when Ralph Peters took charge of this "summer excursion line" to the present day, when it has become one of the "greatest passenger-carrying trunk line railroads in the United States, if not in the world." The population of the territory served has accordingly increased until today it is greater than the combined population of eight states.

He said that the railroad enjoyed the distinction of being the first suburban railroad to electrify and is still the most extensive installation for multiple-unit electric operation in the United States. Electric train service was first started in 1905 between the Flatbush Avenue terminal, Brooklyn, and Rockaway Park. Since that date electrification has been extended until now there are 227.2 miles of electrified track in operation on the Long Island system.

How both traffic and freight have increased is shown by the fact that in 1901 the Long Island carried 14,520,218 passengers and in 1922 79,656,891 passengers, while freight to the amount of 1,642,937 tons was hauled in 1901 compared with 6,027,860 tons in 1922. In 1903 the company had 5,400 employees, who received $3,065,000 in wages, and in 1922 the employees numbered 8,585, who were paid $14,702,000. The gross earnings in 1901 were $4,862,347, compared with $30,951,540 in 1922. Although the net income from operation in 1922 was more than $2,000,000, improvements already under way call for the expenditure of nearly $7,000,000 in 1923.

"Say It with Shovels"

Petitions Aplenty But Subways Scarce in New York—Merchants Act —Mayor Counters

The Merchants' Association of New York is backing the Citizens' Committee of One Thousand, which has recently been formed to try to secure transit relief in the city. The committee has already begun its work of securing signatures to a petition to be presented to the Board of Estimate, urging the immediate construction of new subways. The chairman of the committee is Frank D. Waterman, president of the Waterman Pen Company. The slogan of the committee is "Say It With Shovels."

Crowding Intolerable

Mr. Waterman issued a statement calling upon every subway rider to voice his approval to the plan for the immediate digging for new subway lines. He said that a lot of debating had been going on for about ten years on the subject of construction, but that a new subway had not been authorized since 1913. Further, that no other town or city in the country would put up with the crowding that New Yorkers are forced to face twice a day in the subways.

The petition is addressed to the members of the Board of Estimate and asks them to take steps at once for the construction of the proposed new Brooklyn crosstown subway and Washington Heights subway in Manhattan. The petition refers to the agreement existing between the Transit Commission and the Board of Estimate on the construction of the two lines above mentioned, but states that differences of opinion have caused the board to withhold approval. The question of the municipal operation of the subways can be decided while the two lines are being built, according to the petition.

The Committee of One Thousand has pointed out that the population of the city is increasing at the rate of 160,000 a year; that no trunk line subways have been built in ten years, and that it will take five years to build a new trunk line subway. In the meantime, the congestion will grow worse.

Mayor Attacks Movement

Mayor Hylan attacked the movement of the Committee of One Thousand and stated that he refused to be driven by Mr. Pierson through the instrumentality of a specious petition, or otherwise, to accede to the demands of the traction interests. He said that no more franchises, and particularly the $50,000,000 bus franchises, are going to be wrested from the people of this city, so long as he had the official power "to prevent such a robbery."

A counter-offensive was started by the Mayor directing the circulation of petitions appealing to the Governor and the Legislature for legislation to empower the city to establish the Mayor's proposed $25,000,000 bus system, to remove the Transit Commission and to provide for referendums on the questions of the city ending its transit partnerships with private corporations and the city's turning over bus franchises to transit corporations.

Burden of Paving Cost Lifted from Municipal Railway

The recommendation of the utilities committee of the City Council that the Seattle Municipal Railway be relieved of the burden of paying for paving between tracks has been concurred in by the City Council finance committee, and the burden will be transferred to the general fund, to come out of taxes or be assessed against abutting property, depending upon the circumstances in each case. E. L. Blaine, chairman of the finance committee, presented the only opposition to the plan, declaring that the "general fund has all it can do now." Councilmen indicated that the future policy probably will be to assess abutting property in the downtown streets for the strips of pavement between the tracks, and to contribute from the general fund in the residence district.

Council Rejects Plan Claiming Monopoly for Railway

The City Council at Toledo has practically rejected both the plan of Engineer E. O. Mills, working for Harland Bartholomew, city plan expert, and the modified plan proposed by the board of control of the street railways for rerouting, extensions and added bus lines and feeders to provide crosstown and additional service. The Council, sitting as a committee of the whole, voted nine to eight to reject the proposed plans largely because it would give the Community Traction Company, if carried out, a monopoly of all transportation in the city.

A substitute provision adopted at the meeting favored city-owned bus lines to compete with and operate independently of the traction lines.

It is believed, however, that when the Council meets again a compromise or substitute ordinance will be adopted. Aug. 1 was the limit for such request under the ordinance and two and one-half years are allowed to carry out the plan.

Municipal System Construction Up to Voters

Rapid transit for the city of Detroit appears a step nearer realization with the request by the acting Mayor that the Corporation Counsel draft two amendments to the city charter to permit the construction of a municipal rapid transit system. The amendments, one to permit the city to build its own rapid transit system, and the other, to conform with the new state bonding law for municipalities, are to be submitted to the voters at the primary election on Oct. 9. It is anticipated that the report of the rapid transit commission will be ready for submission to the voters before the October election.

Chicago Survey Suggested

Regional Plan Committee Wants Plan Developed for Co-ordinating Facilities for City of 6,000,000

Recommendations have been submitted by the Chicago Regional Plan Committee on (a) the extent of territory to be included in the metropolitan district of Chicago; (b) the features that should be studied in drawing up such a plan; (c) the best method for undertaking and financing such a plan.

The committee in its report states that the population of the city has increased 23.6 per cent during the last decade, while that within 10 miles outside the city limits has increased 76.3 per cent; and that all indications point to a more rapid growth during the next ten or twenty-five years. It seemed clear that the territory to be studied and planned should be that within a radius of at least 50 miles from the center of Chicago. The utilities are preparing for rapid increases of population, the telephone company estimating a population in the city of 4,000,000 by 1940, which means at least 6,000,000 within the metropolitan district by 1950.

All about the larger city are evidences of undirected and uncontrolled growth. There are not proper zoning and housing regulations. There is no comprehensive plan for extending transit facilities to the outlying cities and villages, and the lack of a coordinated and radiating highway system is known to all.

Physical Survey Planned

It is recommended by the committee that (a) a physical survey be made of the highways, waterways, steam and street railways, etc.; population, lands available for future development, and a study of the needs for public services; (b) an industrial survey analyzing factories and the influences affecting their distribution, and problems of rail and water facilities as terminals; (c) a health and housing survey covering problems of sanitation, zoning, and housing conditions; (d) an educational and recreational survey; (e) a survey of the various governmental organizations in the metropolitan area and of existing and needed legislation in so far as they affect the regional plan and its adoption.

After a discussion of various methods of financing and carrying on this work, the committee recommends the organization of "The Chicago Regional Planning Association," composed of voluntary individual members paying suitable dues. This association would draw to it more and more financial support and also the support of public opinion.

The Chicago Regional Plan Committee was appointed at a conference called by the City Club to consider the advisability of preparing a regional plan for the entire metropolitan district of Chicago. The chairman of the committee is Dwight H. Perkins.

More Wage Conferences

Detroit Railway Commission Opposed to Closed Shop—Men Deny Such Demand Has Been Made

Another conference has been arranged at Detroit in an effort to reach a working agreement between the City Street Railway Department and the platform employees of the Municipal Railway. The meeting will be attended by Frank D. Eaman, arbitrator for the Street Railway Commission; Judge Edward J. Jeffries, arbitrator for the railway employees; Ross Schram, assistant general manager of the Municipal Railway; Mayor Doremus and members of the Street Railway Commission.

Previous to this latest announcement it had been stated by G. Ogden Ellis, president of the Detroit Street Railway Commission, that the department had withdrawn from arbitration proceedings because union officers had made certain demands that the city could not entertain. On the other hand William B. Fitzgerald, first international vice-president of the Amalgamated Association, denied that recognition of the union and a closed shop had been demanded.

According to a statement by the Mayor, the city will not consider any agreement calling for the recognition of the union or the closed shop. The union has asked that a third arbitrator be appointed. Union officers were empowered to take a strike vote, it was announced, in event the third arbitrator was not appointed by Aug. 4.

The break in the arbitration proceedings came after the details of the pay agreement had practically been arranged. In the memorandum summing up the demands, the men included what the commission's representative considered a rigid organized labor contract calling for a closed shop. The Street Railway Commission has no power to recognize the union or institute the closed shop because of charter limitations. Moreover, city officials believe such a course to be against public policy.

A report by the commission, after a meeting between Judge Jeffries for the men and Mr. Eaman for the commission, stated that the men would not consent to the imposition of any conditions not incorporated in a contract with the union. The closed shop was not conceded as a matter for arbitration by the commission, that matter having been brought up last September when the former wage parley was held. Mr. Ellis said that the people of Detroit have voted many times not to grant any franchises and that the union really was asking a franchise in the street railway department, in which any citizen has a right to seek a job without joining any particular organization.

In denying the claim that recognition of the union and recognition of the closed shop were at issue in the controversy, the union's vice-president stated that the union officials are only interested in an increased scale of wages and in shortening working hours. Mr. Fitzgerald further stated that the negotiations as to wages and working conditions have been dragging along since March, when the men asked for an increase in wages of 20 per cent and a minimum working day. One source of objection now on the part of the men is that too many of them are now called upon to work intermittently through fifteen or sixteen hours.

Local No. 17 of the International Brotherhood of Electrical Workers, consisting of linemen and trouble men, has also asked for an increase in wages. The personnel of this department includes about forty men.

New Jersey Men on Strike

All Railway Lines Shut Down—Resumption of Service Unlikely for Some Time—Augmented Jitney Service Handling Traffic Expeditiously in Most Places

MORE than 2,500,000 people in the territory served by the lines of the Public Service Railway in New Jersey are depending for their local transportation on the jitneys and private automobiles. The trainmen in the employ of the company went out on strike on the morning of Aug. 1. Thomas N. McCarter, president of the railway, made a last-minute offer of an additional 5 per cent increase in pay to the men, but they rejected the proposal. This offer from the company was declared to be fully as much as the probable net receipts of the company under the most favorable estimates. The men had asked a 30 per cent increase. Through their representatives the men said they would come down to 60 cents an hour. This would have amounted to a 20 per cent increase. The men said they did not question the accuracy of the company's figures as to its receipts, but announced that they felt the financial condition of the company should not determine the question of wages.

No Agreement to Arbitrate Wages

On the Public Service Railway new men start at 46 cents, at the end of nine months they receive 48 cents, and at the end of the year 50 cents, but men on one-man cars, in addition to these rates, receive 5 cents extra an hour. The routine reports of the company to the Public Service Commission show that the average wage earned by all men of the system has been between $22 and $22.50 per week. The platform men earn considerably more than this as they get 75 cents an hour for overtime, and the average wage of the platform men has been $5.21 a day.

There was nothing in the agreement with the men as to arbitration except as to matters not specifically mentioned in the agreement. Thus working conditions not mentioned in the agreement were to be settled by arbitration. Wages were specifically mentioned in the agreement so were not to be settled by arbitration.

Mr. McCarter's attitude on the question of wages was that if the matter were to go to arbitration a member of the Public Utility Commission should sit on the board. He took the stand that if an increase in wages was granted to the men beyond the probable power of the company to pay it, means should be provided for the company to secure additional revenue either from an increase in fare or through stricter regulation of jitney operation. An arbitration board composed entirely of members whose responsibility would have ended with their decision of the wage matter would, of course, not have been in a position to do more than suggest relief to the company.

As for the company itself Mr. McCarter has previously pointed out its serious financial condition. He has officially announced that it will not use strike breakers. The cars have all been run into the carhouses. Where cars are stored in the open the company has removed the fare boxes and the control handles. Since the strike was called the company has been laying off some employees among the clerical forces, supervisory forces, traffic department and the inspection department. The services of these men are, of course, no longer needed. Several hundred employees will probably be included in this action. Apparently, the company is determined to see the matter through.

There is no need here to review the steps in the negotiations leading up to the final offer of the company to the men. The record of the recent moves has all been set down before. As matters stand now indications point to a prolonged suspension of service. On the other hand, however, there is the possibility of the governing authorities finding a way to provide means of additional revenue for the company, or of the men being prevailed upon from sources outside the company to return to work under a compromise promising relief to the company in the future. One such suggestion advanced is that the men go back at the old rates and that the company resume operation of all its principal lines, allowing the palpably unprofitable ones to remain idle. There is also talk of a possible receivership. This, however, comes from sources outside of company circles.

The situation in New Jersey with respect to handling the public in the present emergency is quite different from that which has prevailed in connection with most other strikes. In the ordinary strike an entirely new service has had to be improvised over night, but in the New Jersey case a transportation system by bus exists which in the ten principal cities in which the company operates carried 141,326,123 passengers in 1922 as compared with 325,265,180 pay passengers handled by the railway in the same year. The bus system of New Jersey, according to the

latest state survey available for reference, include 174 routes for a total length of 1,300 miles over which there were 1,722 motor vehicles in service. With this as a nucleus the service has been expanded to bounds the extent of which can only be guessed. It is an open field now in Jersey for the auto operator because the Public Utility Commission, recognizing the present emergency, on Aug. 1 removed all restrictions pending the continuance of the strike. It is a hazard at best to attempt to say to what extent the regular jitney or bus service has been augmented, but it is estimated that at least 100 buses have been added to the 414 previously licensed in Newark. Mayor Hylan of New York, a good union man, has permitted thirty or more buses to be withdrawn from service in New York City presumably "to help break the strike for the men." In Camden there are 140 buses normally, but a count on Wednesday evening showed there were about 180 vehicles in service.

Quality of Transportation Poor

During the non-rush hours in Newark the buses have been carrying about 50 per cent of the entire business, but have been operating on the heavy traffic lines, and avoiding the lines less well patronized. They carry very much less than 50 per cent of the total in rush hours. The fare by bus in Newark is 5 cents within the city and 10 cents to the Oranges. During the non-rush hours the buses make about the same speed as the trolley cars. During rush hours they make slightly better speed. The fare on the railway is 8 cents cash with four tokens for 30 cents and 1 cent for a transfer. This rate is being charged under an order from the court on appeal from a finding of the State Utility Commission fixing the rate as of Aug. 4, 1921, at 7 cents cash with 2 cents for a transfer. The contention of the company has been for the right to a return on a valuation of $200,898,906 as opposed to a value of $125,000,000 fixed by engineers for the state under a special act of the Legislature and a valuation of $82,000,000 set by the Public Utility Commission.

Observations made in Newark on the evening of Aug. 2 showed the quality of transportation to be poorer than when trolleys were operated, and the cost generally higher in spite of a so-called 5-cent fare on the buses. It is usually necessary to take more than one 5-cent ride to reach the desired destination. Whereas the trolleys operated through routes across the business centers in all the principal municipalities, or gave transfers, the jitney lines nearly all terminate in the heart of the city. The number of foreign buses is about one-fifth of the normal number operating in the city. There are about the same number of old buses revived for the occasion and there are a very few improvised vehicles, making altogether an increase of somewhat less than 50 per cent in the total number of buses. Except during the afternoon rush hour there seems to be no worse overcrowding of the buses than usual. Between 5 and 6 p.m. all the buses run very full. The present is of course an emergency and as yet little attention has been paid to the character of the service. The total volume of traffic in Newark proper on Aug. 1 and 2 seemed to be considerably below normal. Traffic congestion in the streets appeared if anything less than when the cars were operated.

It would appear from the standpoint of the public that the determining factors which will bring about the return of the trolley cars will be the need for service to the suburbs rather than congestion in the center of Newark. The present emergency transportaton service is not intolerable. In Jersey City and Camden it would appear probable that the return of car service on some lines will be demanded, but in Paterson, Elizabeth and New Brunswick it would seem that the buses could continue to do all the business indefinitely without serious inconvenience to the traveling public.

There are a few political angles to the situation, but they are similar to those which arise in connection with every other similar suspension of service. Thus the Mayor of Newark says that the company abrogated its franchise rights when it raised the fare despite the limitations imposed in its franchise, and he has threatened to proceed to tear up the tracks.

All sorts of motives have been attributed to the company from outside for shutting down. Many contend that the strike really involves more than the question of wages. Like every other railway the company is not lacking in vilifiers. They profess to see in the strike a deep laid plan of the company:

1. To restrict jitney competition by keeping its cars idle until it can force the Public Utilities Commission or the Legislature to take action against the jitneys.

2. To get a 10-cent fare on the plea that it cannot pay higher wages on the present 8-cent fare.

3. To go into receivership, reorganize and get rid of unprofitable lines:

As for the company it made public on Aug. 2 its answer to the demands of the men which precipitated the strike. It is a communication from President Thomas N. McCarter to the members of the Amalgamated Association. He assures the workers that if they really knew the economic and financial distress of the company they would not be so selfish and heedless of their own welfare as to seek to force the company to pay higher wages. The letter contains a scientific discussion of the application of the varying cost of living of the last six years to street car wages and assures the workers that the existing wages are 23 per cent higher than demanded by the cost of living—notwithstanding high rents, which are acknowledged—at the moment. This statement is based on the long letter of July 17 to the men.

Many patrons and customers of the Public Service Corporation are stockholders in the company under its recent campaign to extend the idea of customer ownership among the residents of the territory served by it. In a letter to the stockholders Mr. McCarter said:

It is my duty to inform you that the employees of Public Service Railway Company, one of the four principal subsidiaries of your corporation, have gone out upon strike as a result of a demand for increased wages which is not justified by the cost of living and which the railway company was without funds to meet. After the failure of negotiation, the railway company offered to submit the matter in dispute to the arbitration of the Board of Public Utility Commissioners of the State of New Jersey, the only body having any power to furnish the railway company with the additional revenue to meet any substantial raise in wages either through the elimination of jitneys or by an increase in fare. This proposition the men declined to accept.

As a last resort, to prevent the inconvenience to the public of a strike, the railway company offered a 5 per cent increase in pay to the man which, if accepted, would have exhausted the railway company's treasury. This the men declined but insisted upon an increase involving a total annual additional expenditure of approximately $2,500,000, which the railway company was unable to meet.

As, however, the corporation has received no dividends from the railway company for the last five years, the strike and consequent interruption of service, while most unfortunate, will not substantially disturb the finances of the Public Service Corporation of New Jersey nor should it in any way interfere with the corporation's dividend policy, as the three remaining subsidiaries of the corporation are all carrying on a successful business.

Reverting to the matter of the air of gusto with which Mayor Hylan said he will lend aid to the people of New Jersey one of the striking trainmen is reported to have said:

Fine union man. He is bus-crazy anyway, and to make a point in his New York argument he sends fifty strike-breaking buses to Newark, out of his own State, where there are no votes to be swung against him and so he sacrifices us, as good union men as ever he was, to his New York ambitions.

This expression of lament is reported to have come from another former railway employee:

We thought we were striking for ourselves. I'm beginning to think we have been striking for the benefit of the bus owners and the bus drivers. So far as our interests are concerned they are just as effectively strikebreakers as though they were on car platforms. They are not union men. The nickels out of which our wages were paid are going to the bus owners and the bus drivers are getting the wages.

Strike Threat Again in Chicago

Another threat of a street car strike in Chicago bobbed up this week. Laborers and mechanics employed by the Chicago Surface Lines threatened to walk out unless they were granted more than the 3 cents an hour increase offered by the company. Conferences between the company officials and international union officials were being held when this issue of the ELECTRIC RAILWAY JOURNAL went to press, in an effort to reach a settlement. Union officials are said, however, to have agreed not to strike until Mayor Dever returns from a vacation of ten days.

Assurance was given late in the week that motormen and conductors would not support the shopmen and other employees in case of a strike. William Quinlan, president of the street car men, who have accepted an increase of 3 cents an hour said, "Our men will operate the street cars. We have to live up to our contract."

News Notes

Checks for Safety Records Distributed.—Bonus checks totaling $188 were distributed to trainmen of the Wisconsin Public Service Corporation, Green Bay, in appreciation of their work in avoiding accidents during the second quarter of the year. Twenty-six men had no accidents.

Will Talk Railways Over Radio. — Harry L. Brown, editor of ELECTRIC RAILWAY JOURNAL, is scheduled to talk on Saturday evening, Aug. 11, from 7:45 to 8 p.m. from WJZ, Aeolian Hall, New York, to a radio audience. His subject will be: "Is the Electric Railway a Back Number and Can the Bus Replace It?"

Opawa News Appears.—The Steubenville, East Liverpool & Beaver Valley Traction Company, East Liverpool, Ohio, started in July the publication of a pamphlet entitled *The Opawa News*. Number 1 of Vol. I gives a talk to the employees on loyalty and tells about the company's policy and management with respect to supplying service to the public.

$940,000 Paid in Benefits.—The Employees' Benefit Association of the Brooklyn Rapid Transit Company was twenty-one years old on June 1 last. In this period from June 1, 1902, to May 31, 1923, inclusive, association members and their designated beneficiaries have received a total of $940,875 in sick and death benefits.

Resolution Advocates Public Ownership.—Public ownership of all public utilities in the state was advocated in a resolution adopted at the annual meeting of the Municipal League of Georgia, held recently in Atlanta. The league is composed of city and town officials throughout the state, and other persons interested in the policies for which the league stands.

Hearing Adjourned.—The Public Service Commission on July 24 adjourned until sometime after Sept. 10, to consider Mayor Akin's complaint against the Fonda, Johnstown & Gloversville Railroad, asking that it be compelled to fulfill a franchise obligation to extend the Amsterdam trolley line into the southern part of that city. The adjournment was at the joint request of Corporation Counsel Fitzjames, representing the city and Wesley Maider of Gloversville representing the railroad.

Approval Almost Unanimous. — The signatures of 99.9 per cent of all the employees of the Philadelphia Rapid Transit Company were submitted as indicating their approval to the protective of the co-operative wage dividend. The one-tenth of 1 per cent who did not sign are conscientious objectors, principally members of those religous cults which consider participation in co-operative activities as expressing doubt in their church. Thomas E. Mitten expressed satisfaction over the approval of the employees and in writing to President Nyman said that the readiness with which the employees signed over their wage to insure the continued purchase of the company's stock as originally planned, denoted a settled purpose and a recognition of responsibility which was most encouraging.

Boston Men Get Increase.—An increase of 3½ cents an hour, or approximately 6 per cent over the old basic scale in effect, was awarded to the employees of the Eastern Massachusetts Street Railway on Aug. 1. The award was made by Henry C. Attwill, Chairman of the State Department of Public Utilities, as the neutral member and Chairman of an arbitration board. Fred A. Cummings, representing the Public Trustees of the road, concurred in the report and James H. Vahey, representing the employes, dissented. About 3,000 men are affected. The award is retroactive to May 2, and will be in effect until May 1, 1924.

Approves Vote on Municipal Ownership.—Councilman John Hirschberg recently appeared before the Council committee on ordinances to advocate a resolution providing for a special election to pass upon the question of municipal ownership of railway lines in Richmond, Va. After considerable discussion it was determined to table the resolution until "facts and figures" could be presented by Mr. Hirschberg, who promised to have them at an early date. Mr. Hirschberg said that he did not know whether municipal ownership would be a good thing, but that he wanted the people to have the opportunity to express themselves at the polls at this subject.

Seeks Franchise Extension. — The Portland Railway, Light & Power Company, has applied to the City Council of Vancouver, Wash., for a fifty-year extension of its franchise in that city. The company plans to spend $80,000 in improvements there within the next three years. The ordinance extending the franchise will come up for final passage on Aug. 8, before the City Council. One of the provisions of the extension ordinance provides for the repeal of the one which gave J. R. Harvey the power and light franchise in Vancouver many years ago. The Portland Railway, Light & Power Company took over Mr. Harvey's franchise, and is now furnishing both power and light to Vancouver.

Employees Have Outing.—The Connecticut Company employees held their annual outing at Momauguin, New Haven, on July 26. Special cars left New Haven at 9:15 a.m. and upon arrival at the shore, the preliminary baseball games were played. Clam chowder was served at 11:30 a.m. and then the field sports took place. Later 386 Connecticut Company men and guests sat down to an old-fashioned sheep roast, served out of doors on long tables, with plenty of other good things to go with it. After dinner the winners of the preliminary ball games played for the Connecticut Company championship. It resulted in New Haven taking the prize with a score of 13 against 1 for Hartford. This ended the events at the 1923 outing. The Connecticut Company band furnished a fine program of music. It made a hit with the new uniforms.

Operation By City Resumed.—The city of Amarillo, Tex., has again resumed operation of its street railway. The line has been operated by the city under lease from the owners for the last three years because the owners, unable to pay operating costs, proposed junking the property. The city recently gave notice that it did not care to renew the lease. The owners also signified their intention of not attempting to operate the property and it appeared that the city would be without car facilities. Property owners and business men then stepped into the breach and a compromise was reached by which the city will continue operating the property, charging a 5-cent fare instead of 10 cents. The result is that business is picking up and it appears that the property can be made to pay operating costs.

Rejects Company's Proposal. — The strike committee representing the members of International Brotherhood of Electrical Workers, who several weeks ago declared a strike against the Monongahela West Penn Public Service Company, Fairmont, W. Va., at the expiration of a contract agreement, has announced that it has rejected the latest proposal of the company made on July 20. One of the principal features of the proposed agreement suggested by the traction company to which the strike committee objected was an arbitration agreement with a non-strike clause. The chairman of the strike committee in a statement said that the union was willing to submit an arbitration proposal that would be so braced as practically to make the non-strike provision unnecessary, but that it should be in the agreement as a last resort.

Talk of an Important Canadian-American Line.—Reports from Aroostook, Me., say that negotiations between the Canadian Government Railway and Arthur R. Gould, president of the Aroostook Valley Railroad, have reached a point which makes the proposed Quebec extension electric line across the northern part of this state seem a practical certainty. The project is to connect the two roads by a line between Washburn and La Fontaine, Que. Mr. Gould and his associates are to build a railroad from Washburn to a point on the Quebec border above Ludwig Pond, while the Canadian road will construct a branch from La Fontaine to this point. The American line will be 100 miles in length and the Canadian about 20. The approximate cost of the construction may reach $4,000,000 at present-day figures. The Aroostook Valley line, of which Mr. Gould is the head, is a 40-mile electric road.

Foreign News

Safety Glass Car Windows

The motormen's compartments on the new cars for the London Underground Railways will be fitted with "triplex" glass windows, which glass is claimed to be unsplinterable. Thus in case of the windows being smashed through collision or any other cause, the risk of injury through flying splinters of glass is eliminated. There are two sheets of glass with a thin sheet of transparent celluloid between.

Car Building Municipalities

Declining to follow the lead of some British municipalities, the Edinburgh Town Council has accepted the decision of its tramways committee not to enter into municipal trading by building its own tramcars. The town clerk, who was consulted on the legal aspect of the question, said that there was a direct prohibition against the Council's manufacturing motor omnibuses, but there was no such prohibition in regard to tramcars. Building cars, he pointed out, was different from repairs and reconstruction. The Council agreed to invite tenders for eight additional cars.

Coolness on Underground Railways

During the tropical heat which began in London in July attention was again directed to the coolness of the atmosphere on the deep-level tube railways of the metropolis. When the maximum shade temperature out-of-doors ranges round about 90 deg. F., the drop to about 60 deg. experienced on taking a tube train is very noticeable. The temperature in these deep tunnels is about 60 deg. all the year round, no matter how hot or how cold it may be outside. Powerful ventilating fans and ozonizing apparatus are constantly at work. On all these railways about 30,000,000 cu.ft. of air are drawn in daily, and of course a similar quantity ejected. On the other hand during hard frost in wintertime, entering a tube railway feels like going into a warm room.

Maintenance of Permanent Way in Britain

The subject of the cost of maintaining tramway permanent way has been considered by the Council of the Municipal Tramways Association, with special reference to its bearing on the relation of municipalities to the Roads Fund (a national fund derived from automobile vehicle taxation), and the financial consequences of grants in aid in respect of track maintenance. The Council came to the opinion that such a scheme would have the effect of diminishing the total sum now receivable out of the Roads Fund by members of the Association as local authorities. It was accordingly resolved that the Association was not prepared to take any steps which would affect adversely the financial position as a whole of local authorities, and that therefore the subject be not further pursued.

London to Southend Electrification

In the House of Commons, on June 14, a promise was given as to the electrification of the London, Midland & Scottish Railway's line from London to Southend-on-Sea, Essex, a distance of about 40 miles. Parliamentary authority for the work was obtained in 1912 but owing to the war and other causes nothing has been done. The railway has a bill for various purposes now before Parliament, and it came on for second reading on June 14. Threatened opposition to it was withdrawn on a statement being made that as soon as the board of the amalgamated company was constituted it would address itself to the problems involved, and endeavor to bring a satisfactory scheme to maturity at the earliest possible moment. Before the railway amalgamations which came into force on Jan. 1 last the London to Southend line belonged to the Midland Railway, which is one of the companies absorbed in the London, Midland & Scottish Railway.

Automatic Ticket Machines on London Railways

With a view to accelerating the booking of passengers during the rush hours, at Victoria Station, (District Railway, London), the underground companies a short time ago placed a "battery" of twelve ticket machines in the circulating area as an auxiliary to the usual booking office facilities. These machines are now issuing tickets at the rate of 2,500,000 per annum or approximately 30 per cent of the total bookings at this station. In booking halls of restricted size it is of great importance that quick booking facilities should be provided. It is impracticable to add to the size of the booking offices, but ticket machines overcome this difficulty and the public appear to appreciate this method of getting their tickets. The success of the scheme at Victoria has led to the establishment of similar "batteries" at Waterloo, Elephant, Bank and Mansion House and a further batch of fifty now on order will provide the same facilities at Westminster, Paddington, Liverpool Street and Leicester Square in the future.

Consideration is being given to equipping a warning bell to be rung in the booking office when the stocks of tickets are running low. An electrical device now fitted causes the machines to reject passengers' money if they are out of order.

An interesting feature in connect with the Victoria Station batteries shortly be introduced when the me front of one of the machines will replaced by plate glass, thus reveal to the passenger the clever mechani of these electric machines and enabli him to watch the progress of his c from the moment of inserting it i the slot until the delivery of the tick

Whilst these improvements are be made, the rate of ticket issues from booking offices also has been spee up by the provision of "rolltic and au maticket" machines, of which fifty- have now been installed at the busi traffic centers. Recent rush period te have shown that both types of machi have an output of well over 1,000 tick an hour, this including the giving change. In both machines the tick are kept in rolls of 1,000, which easily replaced, thus saving preci seconds and speeding the passenge journey from booking hall to platfor

Recent Orders for Railway Equipment

The Lombardy Electric Traction Co pany, operating in the City of Mil Italy, has ordered from the Milano M chanical Works, formerly Miani, Silv tri & Company, twelve double-truck steel electric trailer cars to be 7 ft. 9 wide, about 48 ft. long and to we approximately 10½ tons. These cars be equipped with red plush se bronze trimmings, etc. They will used in the company's interurban li ited service between Milan and Mon Twelve composite steel and wood mo cars ordered from the Breda Locor tive & Car Works of Milan are nearing completion. These cars are ranged for "pay-within" operati They will be used for local runs on Milan-Gorla and other short one or t zone suburban lines.

Plans Electrification

The Lombardy Road Railways, L formerly British owned, but now a p of the Milan Edison system, cont plates electrifying its Milan-Carate from Milan to Desio, Italy, 12 mi The financing of the scheme has b arranged through the Milano & L bard Provinces Savings Bank with full approval of the Ministry of Pu Works (Railway and Transportation spection Bureau). Another subsidi of the Milan Edison Company, a for Belgian company known as the In provincial Tramways, is planning to tend its electrification on the Mil Crescenzago line to Cascina Go (about 6 miles) in order that all tr from its northern lines may enter M under electrical operation. Since a April of this year a heavy four-w motor car (13 tons, 120 hp.) has b equipped with Svenska Kullager F riks ball bearings, instead of jou brasses. This is the first serious periment of this kind in Italy and to date, seems to give satisfactory sults both in power and lubrica saving.

Financial and Corporate

City's Expert Fixes Minneapolis Valuation at $11,000,000

Vol. 1 has been issued of the report by Delos F. Wilcox on the Minneapolis Street Railway appraisal. This volume includes the general conclusions of Mr. Wilcox and selected tables from the voluminous report filed on June 5 with the City Council and with the Railroad & Warehouse Commission of Minnesota. Mr. Wilcox terms the volume a "report upon the value of the street railway property of the Minneapolis Street Railway and the operating conditions and expenses of the company, based upon an inventory of the property as of Jan. 1, 1922; an investigation of the company's books, accounts and records, and an appraisal of the property as an operating system, all pursuant to the provision in chapter 278, laws of Minnesota, 1921, entitled 'An Act Relating to Street Railways.'"

In his summary of conclusions, Mr. Wilcox says that the actual cost new of the company's property, used, useful and reasonably necessary for street railway purposes within the city of Minneapolis, as of Jan. 1, 1922, the date of the inventory, was $15,939,918. The reproduction costs new of the property included in the inventory, based upon normal or historical unit costs, with 15 per cent allowed for general overhead expenses, was $17,457,362 according to Mr. Wilcox. He places the normal or historical reproduction costs new, less straight line depreciation, at $10,030,-008. He recommends that the fair value for rate purposes of the company's street railway property used, useful and reasonably necessary for street railway purposes in the city of Minneapolis be fixed at $11,000,000 as of the date of the inventory. He further recommends that the annual rate of return to be allowed on the rate base be fixed at 6½ per cent. As he sees it, the annual return upon the investment, therefore, should be 6½ per cent on $11,000,000, or $715,000.

It is his opinion that the excess of the company's operating income for the year 1923, based upon proper adjustment of its 1922 income, over a reasonable return upon the fair value of the property of the company as determined by him, will be approximately $1,686,-118. Since Aug. 16, 1920, the company has been charging a straight 6-cent fare with free transfers. Mr. Wilcox recommends that the rate of fare be fixed at 7 cents with free transfers. According to his estimate, this gives the company a leeway for surplus and reserve of $355,170 over and above a reasonable return on its investment. He says that even if it should be held that the value of the leases there must be included, the method of valuation used by Cappelen, Pillsbury and A. L. Drum & Company is fundamentally unsound.

Mr. Wilcox says that the principal difficulties arising with respect to the inventory, aside from the difficulties always incurred in making an accurate description of a complex property such as a street railway system, were the result of differences in theory as to the propriety of excluding or including certain items in the list of used and useful property and differences arising with respect to the allocation of jointly-owned property.

Net Income Decreases in Detroit

The earnings of the Department of Street Railways in Detroit, in June were $62,139. Although the revenue from transportation increased there was also an increase in operating expenses. The total revenue from transportation was $1,694,664. This was in excess of the revenue for June, 1922, but the net profit was cut down by decreases in rentals and increased costs of operation.

To meet increased traffic demands the department furnished 507,347 additional car-miles. Miles operated last month were 4,371,504 as compared with 3,864,-157 in June a year ago. The cost of operating each car per mile increased from 28 cents to 30.42 cents. This increase is reported as being principally due to the higher wages paid the employees. The number of passengers carried in June was 41,730 246, as compared with 36,715,466 in June, 1922.

In order to meet principal and interest on notes payable, sinking fund and interest charges and bond requirements, the sum of $353,532 was set aside during the month.

Jersey Central Traction Suspends

Service on the 40 miles of track of the Jersey Central Traction Company was suspended at midnight, July 28, the necessary approval of the Public Utility Commission having been granted earlier in the month. The Jersey Central line served about 30,000 people in the Perth Amboy-Atlantic Highlands district of New Jersey. A steady decrease in patronage and the resultant loss of money were given as the cause for suspension. An account of the hearing on the company's application for permission to discontinue, appeared in the ELECTRIC RAILWAY JOURNAL for July 7, page 33, July 21, page 116.

Jitney buses have been serving the district since July 28. Under the state laws, no certificate of convenience is necessary for owners of buses operating along streets where there is no trolley track. It has been assumed that no certificate is necessary for operation along the tracks of the defunct railway, so there is no way of determining the number of buses serving the district, but the present service by the buses is said to be adequate.

Reproduction Cost Not the Controlling Factor

Reproduction cost of public utility properties in Wisconsin cannot be considered as the controlling factor or even as a considerable factor in fixing the valuation of such properties for rate-making purposes by the State Railroad Commission. Judge M. B. Rosenberry of the Wisconsin Supreme Court has so held in the case of the Waukesha Gas & Electric Company against the Railroad Commission of Wisconsin. His decision upholds the power of the commission to fix rates for public utilities and justifies the commission in disregarding to a large extent the claim of replacement values made by utility companies in resisting demands for lower rates.

The decision by the State Supreme Court was rendered in affirming the recent decision of the Circuit Court of Dane County which restrained the company from increasing its electric rates on the basis of a revised valuation of its properties. The latest ruling is regarded as practically stabilizing the valuation of utility companies for rate-making purposes and doing away with expensive revaluations and rate hearings.

The court points out that the United States Supreme Court, in three cases decided in May and June of this year, has not entirely clarified the situation as none of them contains a statement as to what weight should be accorded to the cost of reproduction new, less depreciation. One of these was the Southwestern Bell Telephone Company case from Missouri, which was interpreted at the time as upholding the reproduction cost theory of valuation.

Stating that it does not attempt to lay down a formula for valuing public utilities, the Wisconsin court says if it were to accord rank to the various factors to be considered in accordance with the weight to be given each in determining present fair value for establishing a rate base, such formula would be this:

1. Actual cost of plant when the investment has been prudently made.
2. Under normal conditions, cost of reproduction new, less depreciation. (When conditions are abnormal, cost of reproduction new, less depreciation, should be fourth.)
3. Going concern value.
4. Working capital.
5. Other elements of value which may be presented in a particular case.

Seeks Approval of Seneca Lake Abandonment

The Elmira, Water, Light & Railroad Company, Elmira, N. Y., recently applied to the Public Service Commission for approval of a declaration of abandonment of its Seneca Lake division, running from Horseheads through Veteran, Montour and Dix. The railroad says that although every expedient known to the management has been tried to increase the gross revenue, the revenue has not been sufficient to pay operating expenses, and that to keep it in operation under present conditions was unfair to the security holders.

Receivership of Staten Island Line Lifted

John J. Kuhn, receiver for the Richmond Light & Railroad Company, Staten Island, N. Y., for the last three years, was discharged on July 31 when the receivership was ended by United States District Court Judge Edward L. Garvan. The court acted on the application of the Staten Island Edison Company and the Richmond Railroad, formed to take over the Richmond Light & Railroad Company.

The latter company for years enjoyed a monopoly of street and commercial lighting on Staten Island, a large proportion of the stock in the company being owned by H. H. Rogers. Upon his death the interest passed to his estate. The company long carried on a profitable business in commercial lighting, but during the war-time period it became impossible to operate the railway profitably at a 5-cent fare.

The directors of the company applied to the New York city administration for permission to increase fares to 8 cents and were met with a flat refusal. On April 28, 1920, a receiver was appointed on the application of the Westinghouse Electric & Manufacturing Company, one of the creditors.

Later Judge Chatfield, in Brooklyn, granted an 8-cent fare. Since that time, it was said, the railway has been operated upon a profitable basis.

On Oct. 8, 1922, the J. G. White Management Company purchased the interest in the company held by the estate of H. H. Rogers. As pointed out in the ELECTRIC RAILWAY JOURNAL for July 28 the White interests organized and incorporated the Staten Island Edison Company and the Richmond Railroad. It was upon the application of the White Company to the court that the receivership was discharged. J. H. Pardee is president of both companies, which for the most part retain the personnel of the Richmond Light & Railroad Company.

Miami Traction Company Dissolves

The Miami Traction Company organized about nine years ago by the Tatum interests, recently passed out of existence by the signing of an order by Judge Atkinson in the Circuit Court. The Tatum interests built the present car system of Miami.

The company operated for several years with storage battery cars. It was unable to compete with jitneys and when the company's carhouses were destroyed by fire, service was suspended. Afterward, the tracks were purchased by the city of Miami, and a lease was signed between the city and the Miami Beach Electric Company, organized by Carl G. Fisher, to furnish street car service between Miami and Miami Beach and at Miami Beach, whereby that company was to operate the city's lines.

Several weeks ago a petition was filed by the Miami Traction Company, asking permission to dissolve the corporation on the ground that it was no longer in business. It was on this petition that Judge Atkinson acted when he signed a decree dissolving the Miami Traction Company as a corporation.

$259,526 Surplus for Northern States Power

The report of Northern States Power Company, Chicago, Ill., for the year ended Dec. 31, 1922, shows net income of $2,594,660, after taxes, interest, depreciation, amortization, etc., equivalent after preferred dividends to $12.20 a share earned on the $6,170,000 outstanding common stock. This compares with $2,111,861, or $8.27 a share on common.. The consolidated income account for 1922 compares as follows:

	1922	1921
Gross receipts	$13,881,919	$12,963,922
Net after taxes	5,781,092	5,207,543
Interest	2,311,432	2,295,682
Depreciation, etc.	875,000	800,000
Balance	$2,594,660	$2,111,861
Preferred dividends	1,841,534	1,601,164
Common dividends	493,600	246,800
Surplus	$259,526	$263,897

Quebec Power Announces Terms of Merger With Railway

Following a joint meeting of the directors of the Quebec Railway, Light, Heat & Power Company and the Quebec Power Company the directors of the former company sent a letter to the shareholders advising them that their best interests would be served by their acceptance of the offer of the Quebec Power Company. Secretary Wilson in announcing to their Quebec Railway shareholders the directors' unanimous decision stated that it was evident that only through such co-ordination of interests and the grouping together of the power resources of the two companies could the necessary economies of operation be brought about.

To the holders of the common shares of the Quebec Railway the following offer was made:

Quebec Power Company will purchase and acquire the whole or any part of the common shares of the Quebec Railway, Light, Heat & Power Company, Limited, of an aggregate par value of $10,000,000 by giving in exchange therefor common shares of Quebec Power Company of the par value of $100 each on the basis of $25 par value of such common shares for each $100 par value of the common shares of Quebec Railway, Light, Heat & Power Company, Limited. The common shares so offered in exchange form a part of an authorized issue of $6,000,000, of which $1,600,000 have been issued and are presently outstanding.

To the holders of the 5 per cent thirty-year income bonds of the Quebec Railway the offer was as follows:

Quebec Power Company will purchase and acquire the whole or any part of the income bonds of the Quebec Railway, Light, Heat & Power Company, Limited, of the issue above mentioned, by giving in exchange therefor 7 per cent preference shares of the par value of $100 each of Quebec Power Company on the basis of $30 par value of such preference shares for each $100 par value of such income bonds. The preference shares so offered in exchange form part of an authorized issue of $4,000,000, of which $1,410,000 have been issued and are presently outstanding. Or, at the option of the holder, the Quebec Power Company will pay $27 in cash for each $100 par value of such income bonds.

Financial Authority Optimistic About Grand Rapids

Dividend prospects of the Grand Rapids Railway appear to be good, according to the *Wall Street Journal*. That paper says that while no official statement has been made regarding payment of back dividends, it is expected that some plan beneficial to stockholders will be worked out after arrangements are completed to refund the $2,500,000 first 6s and $1,200,000 general 6s outstanding. Only the first 6s are in the hands of the public. These latter are selling in unlisted securities market around 99½, to yield 6.50 at maturity. The stock is quoted at the present time at $38 a share.

As indicated in the ELECTRIC RAILWAY JOURNAL for July 28 the company in June ran slightly behind the 8 per cent return guaranteed to it under the terms of the recently revised franchise, but the *Wall Street Journal* says that the net earnings for twelve months ended May 31, 1923, were $553,962, the largest for any corresponding period since the company's organization in 1900. While its gross revenues during the five-year period noted showed improvement from year to year, conditions imposed by the war and the post-war periods made heavy inroads on net income and deficits after depreciation continued to pile up until 1922, when the road was able to show net profits a little in excess of $6,000.

The company's original franchise expired in April, 1921. An agreement was then made with the city by which lines continued to operate and experiments were made with various rates of fare to note their effect upon traffic and a fair return to company. The result of these experiments was that in April, 1922, a service-at-cost franchise was agreed upon between city and company. The voters ratified this grant in September, 1922, effective at once. It provided for initial valuation for rate-making purposes of $5,500,000, plus cost of additions from time to time, and for a graduated rate of return depending on fare charged. Initial return was fixed at 8 per cent with 10-cent cash fares, or seven tickets for 50 cents and free transfers. During nine months subsequent to September, 1922, company came within $15,000 of earning full return to which it was entitled. Jitney competition has been eliminated by agreement, giving the company an opportunity to develop its own system, and it has recently installed six buses of the Fifth Avenue coach type to reach parts of the city not covered by car lines.

The Grand Rapids Railway is a subsidiary of the Commonwealth Power Railway & Light Company. All the common stock of the Grand Rapids company and $500,000 of $2,000,000 of 5 per cent preferred is owned by Commonwealth company. Dividends were paid on preferred from 1900 to November, 1918. Since then there have been accumulated dividends aggregating 23 per cent.

Wage Increase and Heavy Maintenance Bring Expenses Above Revenue

A decline in passenger travel and a marked increase in operating expenses due to high maintenance layout and increased wages brought a deficit of $26,748 in the operations of the Community Traction Company, at Toledo in June, according to the report of the Street Railway Commissioner to the board of control at its meeting on July 18.

The 10 per cent wage increase to all employees and the maintenance program, which has increased the force of workmen by about 100 men, boosted the payroll expense about $34,000 over June last year.

Additional maintenance funds set up amounted to $20,000 for a total of $60,000 and the expenditures during the month reached more than $72,000 for the highest maintenance for one month in the history of the company.

Operating costs resulted in a ratio of operating expense to gross income reaching the high figure of 80.57 per cent. The commissioner commented on this by saying that to break even an operating ratio of not more than 70 per cent should be maintained.

Riding has decreased from an average of 187,539 revenue passengers a day in March to 172,467 in June and present indications are that the average for July will not exceed 168,000. The increased use of private automobiles is the reason given for the big drop in summer.

Bus feeders continued to fail to break even, although the Oak Street line showed a slight betterment.

Hudson & Manhattan Making Good Record

The declaration of the initial 2½ per cent dividend on the preferred stock of the Hudson & Manhattan Railroad, New York, referred to briefly in the ELECTRIC RAILWAY JOURNAL for July 28, page 158, has attracted much attention in railway and financial circles. The position of the company with respect to earnings has been improving over a long period now. The *Evening Sun* recently stated the matter as follows:

> This is the first disbursement on the issue since the company's consolidation with the New York & New Jersey Railroad in 1906. The issue is non-cumulative. During the world war the company was permitted to increase its fares by the Interstate Commerce Commission, and earnings at the present time are double those of 1916. Much of the increase is accounted for in the movement of New York city residents to own homes in New Jersey. At the same time operating expenses were kept at a minimum
>
> In 1913 the capitalization was readjusted with an assessment of $8.50 on each common and preferred share. In April of this year the company cleared up its back interest payments on the 5 per cent adjustment income bonds. This action paved the way for the declaration of the dividend.
>
> The June report reflects the company's improvement. Surplus, after full adjustment on the income 5s, was given as $90,524, as compared with $29,372 in the same month last year. For the first half of the current year surplus after all charges amounted to $600,426, against $407,968 in 1922. A majority of the common stock is owned by the Hudson Companies.

Net Income Increases.—The net income of the Twin City Rapid Transit Company and subsidiaries for the first six months of 1923 was $929,075 against $793,870 for the same period a year ago.

Sale Held. — The bondholders' committee bid in the Portsmouth, Dover & York Street Railway, Portsmouth, N. H., at a sale in Boston on June 30. The trustee under the indenture securing the bonds is the State Street Trust Company of Boston.

Railway Service to Be Continued.—Railway service will be continued in Waupaca, Wis., following the vote of the City Council which was seven to one in favor of keeping the service furnished by the Waupaca Electric Service & Railway Company. A controversy had existed between the company and the city over paving of the company's track zone on Fulton Street.

New Issues Explained. — William Hughes Clarke, investment bonds and stocks, Chicago, has prepared a bulletin presenting the divisional earnings of the separate companies of the Chicago Elevated Railways, which will be of interest to holders of the old elevated securities. The new issues proposed in the reorganization are also explained in the bulletin.

Increase in Net Income.—The Brooklyn City Railroad, Brooklyn, New York, for the year ending June 30, 1923, reports a passenger revenue of $11,715,964 against $11,413,651 for the year ending June 30, 1922. The net corporate income for the year ended June 30, 1923, was $2,256,025. For the year ended June 30, 1922, the net corporate income was $1,765,528.

Auction Sales in New York.—At the public auction rooms of A. H. Muller & Sons on Aug. 1 there were sold $4,000 of Southwestern Gas & Electric Company general 6 per cent bonds, due 1957, interest May and November, 77¼ per cent; and $2,000 of the Union Traction Company of Indiana first general 6 per cent bonds, due 1932, interest January and July, 64¾ per cent.

Balance Shows Increase.—The net earnings of the Virginia Railway & Power Company for the first six months of the year were $1,953,840, against $1,431,295 for the same period in 1922. After consideration of the depreciation and renewal reserve, the balance for the first six months of the current year was $686,017, an increase of $499,885 over the period from January to June, 1922.

Two-Year Notes Offered.—Stone & Webster are offering $1,000,000 of the Savannah Electric & Power Company's two year 6½ per cent gold notes at 99½ and interest, to yield 6¾ per cent. The notes are dated July 2, 1923, and mature July 1, 1925. The Public Service Commission of Georgia has approved this issue of $1,000,000 notes to provide funds for the purchase of the property formerly owned by the Savannah Lighting Company, which has done a portion of the electric lighting and power business in Savannah. The unified operation of the properties will furnish better service to customers and permit substantial economies.

Surplus Earnings Increase. — The United Light & Railways Company, Grand Rapids, Mich., for the twelve months ended June 30, 1923, reports gross earnings of $12,400,250 against $11,243,413 for the same period a year ago. The surplus earnings available for depreciation, debt discount and common stock dividends was $1,235,545 for the year ending June 30, 1923, which represented an increase of $298,895 over the surplus earnings for the year ending June 30, 1922.

Offer Gold Bonds.—Halsey, Stuart & Company, Inc., are offering at 91½ and interest, yielding about 6.70 per cent, $7,192,000 of Interstate Public Service Company first mortgage and refunding 6 per cent gold bonds, known as series "A." The bonds are due Feb. 1, 1948. The company, of which Harry Reid is president, comprises 24 miles of electric railway, and 122 miles of interurban lines, with modern switching, signalling and substation equipment. The interurban line from Seymour to Indianapolis is operated under a 999-year lease, completing the line from Indianapolis to Louisville, reaching more than 750,000 people. The proceeds from the sale of these bonds will be used for refunding purposes and for other corporate uses.

Sporting Arena to Replace Carhouse.—Tex Rickard, John Ringling and associates, under the name of the New Madison Square Garden Corporation, expect to acquire title to nearly the whole block at Fiftieth Street and Seventh Avenue, New York, now occupied by the carhouse of the Broadway & Seventh Avenue Railroad, included in the New York Railways, to build the "largest indoor arena in the world." The contention of the minority stockholders is that the price to be paid for the site is sufficient for the Broadway & Seventh Avenue Railroad to make a profit for its shareholders if the company can be separated from the New York Railways. They have sought the advice of the court on the matter.

Freight Business Increases.—A decrease in passenger traffic revenue and increase in income from freight business is recorded in the report of the Indiana, Columbus & Eastern Traction Company, for the first five months of 1923. The report was made public on June 30 at the company's headquarters in Springfield, Ohio. The report shows that while the average mileage was 4 per cent greater than for the same period in 1922, there was considerable greater decrease in the volume of passenger business. This was attributed in the company's report to competitive bus lines. Nearly 100 per cent increase was noted in the freight business for the period over the corresponding five months in 1922. This, the company believes, was due both to a betterment of industrial conditions general in Ohio, and to the campaign which has been conducted among shippers to route their shipments over the traction line.

Traffic and Transportation

Guards Hear What To Do in Emergency

A circular entitled "What Interborough employees are to do when an accident occurs on the subway" was recently issued by Frank Hedley, president and general manager of the Interborough, and distributed among the employees. Complaints have been sent to the subway management as the result of failure on the part of the employees to follow out strictly the rules "adopted for their guidance in emergency cases." Accordingly, Mr. Hedley said the circular was prepared for ready reference to some of the more important rules in emergency cases.

The employees are first of all reminded that the safety of passengers is the first consideration and that the understanding of the emergency control devices and the emergency alarm system is absolutely essential.

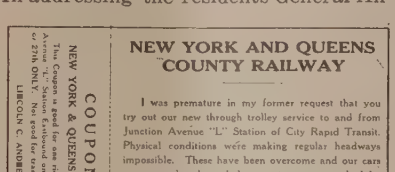
Besides the handling of the car the employees (conductors and guards) must also know how to take care of the passengers. Mr. Hedley says that in the event of a blockade passengers will want to know "What is the matter?" and "How long are we likely to be detained?" These questions must be answered at once according to company rules, and if the guard is without facts he must secure the information as soon as possible (by telephone from trainmaster or the nearest dispatcher). Copies of the circular of instructions to the employees were sent to the metropolitan newspapers which published extracts from it. In this way it was brought forcefully to the attention of the riding public just what information it might expect in the future whenever an emergency arose in connection with the operation of the transit lines under the management of the Interborough.

Buses in the Plan for Better Service in Greensboro

According to R. J. Hole, second vice-president and general manager of the North Carolina Public Service Company, Greensboro, his company contemplates installing buses to certain sections not touched by the railway line. This decision was reached after Mr. Hole had received an engineering report from an independent authority on the traffic situation in Greensboro, and after Mr. Hole had made a personal study of the matter to ascertain what success the gasoline buses are having. As a result of his investigation Mr. Hole feels that it is well worth the time and money of the company to install the buses, and he accordingly informed the director of the road of his plans. The plans now contemplated call for an expenditure of $50,000. The cost of the buses is estimated at $8,000 each. In addition to the bus plan, the company expects to better its railway service. Just now the grade crossing problem makes it practically impossible to keep cars close to the schedules.

Offers Sample Rides to Patrons

A sample ride is the latest stunt of the New York & Queens County Railway. On the assumption that a trial ride will be so good that you'll want more, Receiver Lincoln C. Andrews recently sent the accompanying postcard to approximately 6,000 residents of the communities affected by the through trolley service from the Corona Elevated line to Flushing, College Point and Jamaica with a coupon attached "good for one ride from Junction Avenue 'L' station eastbound on July 25, 26 or 27 only. Not good for transfer." In addressing the residents General Andrews stated that he had been premature in his former request urging a try-out of the new through trolley service as physical conditions had made regular headways impossible. But since these difficulties were overcome and hence cars could be depended upon to run on schedule, he was asking for a tryout of the service.


COUPON
NEW YORK & QUEENS CO. R. R.
This Coupon is good for one ride from Junction Ave. Station eastbound on July 25th, 26th or 27th ONLY. Not good for transfer.
LINCOLN C. ANDREWS, Receiver
NEW YORK AND QUEENS COUNTY RAILWAY
I was premature in my former request that you try out our new through trolley service to and from Junction Avenue "L" Station of City Rapid Transit. Physical conditions were making regular headways impossible. These have been overcome and our cars may now be depended upon to run on schedule. Please try out using City Rapid Transit between your home and city destination
LINCOLN C. ANDREWS, Receiver.

Invitation to Ride Free Sent to Patrons

The reaction from the postcard was very good, some suggestions coming in from patrons which showed a very friendly spirit and indicating that they would be glad to use the service if it was made dependable—a condition which has not prevailed in the past but which the General is making a determined effort to correct.

Houston Fare Issue Postponed

The hearing on the Houston Electric Company's petition for an increase in fare from 6¾ cents to 9 cents has been postponed until Sept. 24. The extension has been granted to enable the company to revise its depreciation figures and to enable the city to study the valuation claims of the company.

The fare is now 7 cents cash with a ticket rate of four for 25 cents. The number of jitneys operating at present has been limited to 150, being reduced about a year ago from 300. They largely duplicate the car service except to Harrisburg where a 10-cent fare is charged on the jitneys, and they operate one half mile beyond the end of the car line. A recent referendum election voted the continuance of the jitney operation.

John A. Beeler has been engaged by the city of Houston to make a traffic routing and operating survey in order to determine the extent and value of all practical operating economies. He will also investigate the jitney situation in the city.

Jitney Hearing Set for Aug. 4

The question of whether jitneys are operating in Schenectady legally or illegally remains deadlocked because of the reluctance of Supreme Court Justice Henry V. Borst of Amsterdam to entertain a motion which would lead to a decision as to the legal status of the jitney injunction. The entire question will be held in abeyance at least until Aug. 4, to which time the hearing held before Justice Borst on July 28 was adjourned. Meanwhile jitneys are operating with renewed vigor.

The Schenectady Railway sought in special term before Justice Borst to have the order of County Judge John J. McMullen of Schenectady vacating the injunction of Justice Angell restraining jitney operation set aside on the ground that the county judge was without authority to issue such order.

Justice Borst shifted the responsibility, claiming it was a matter in which Justice Edward M. Angell of Glens Falls should have jurisdiction because it was Judge Angell who issued the original injunction at the request of the Schenectady Railway restraining the jitneys.

The legality of the vacating order seems from the course the argument took to hinge largely upon whether the vacating order was that of the county court or of the county judge.

Judge Naylor, who appeared for the railway contended that it was a county court order and as such was improperly issued, in that the county court was without jurisdiction. Asked as to whether the vacating order would be legal if construed as an order of the county judge, Judge Naylor said that the company would not admit this, holding that the action of Judge McMullen in vacating the order was not proper in any circumstance.

Judge Borst, following the discussion, said that inasmuch as it was a matter which intimately concerned Justice Angell, he would prefer the question be heard and passed upon by Justice Angell. He explained that a supreme court judge did not make a practice of passing upon an order either vacating, amending or interfering in any way with such an order of another justice of the supreme court.

It is an interesting situation. If Justice Angell decides the matter, the possibility exists that as an outcome County Judge McMullen would be declared in contempt and this is the situation which apparently the justices do not wish to entertain.

New Traffic Regulations in Effect in Ohio

A new uniform state traffic code went into effect in Ohio on July 26. This code incorporates many of the provisions of the model traffic code of the American Electric Railway Association, and the incorporation of these provisions in the new Ohio code is due to the interest and activity of Paul E. Wilson, secretary of the Cleveland Railway. For example, the definition of the word "vehicle" in Ohio's new code is exactly that given by the model code of the A.E.R.A. Under Ohio's new code, all streets and roads used by electric railways are designated as main thoroughfares, and vehicles and street cars using such thoroughfares have the right-of-way over those going on intersections.

A few of the interesting section's of Ohio's new traffic code are:

Pedestrians shall not step into or upon a public road or highway without looking in both directions to see what is approaching. The penalty for infraction of this is a fine of between $25 and $100.

Vehicles shall keep to the right side of the road or highway except when necessary to turn to the left in crossing the road or highway or in overtaking and passing another vehicle; provided that in passing a vehicle going in the same direction, such passing shall be made as close to the right hand side of the road or highway as practical.

Before backing, drivers of vehicles shall give ample warning, and while backing, vigilance shall be exercised not to injure those behind.

Drivers of vehicles, before turning, stopping or changing their course, shall make sure such movement can be made in safety and shall cause signals to be made of their intention, in a way visible outside the vehicle.

The operator of a vehicle shall yield the right-of-way at the intersection of its path and the path of another vehicle to the vehicle approaching from the right.

Speed limits are fixed at 15 m.ph., in the business or closely built up portions of municipal corporations, 25 m.ph. in other portions of municipal corporations and 35 m.ph. outside of municipalities.

Motor vehicle drivers are subject to fines of between $10 and $100 for first offenses against the new traffic code, and for second offenses, fines of between $25 and $100, together with imprisonment for not more than ten days.

Bus Operators Will Go to Supreme Court

Jitney drivers in Fort Worth, and operators of motor buses and service cars carrying passengers between Dallas and Fort Worth, have joined issue with the city of Fort Worth in its effort to legislate these jitneys and motor bus lines out of business. The City Commission at Fort Worth recently passed an ordinance prohibiting the jitneys and inter-city service cars and motor buses from using any street in the down-town business district except Fourth Street. Traffic officers were placed on the Dallas-Fort Worth pike at the city limits to stop intercity service cars, and extra traffic officers were placed on duty downtown to keep jitneys and service cars off these streets.

The effect of this legislation, if enforced to the letter, would be to put the intercity service cars and buses operating between Dallas and Fort Worth out of business, as they would be unable to find an entrance into the city. The legislation would also put out of business those jitneys now operating from the business district to several outlying additions to the city not served by street car lines.

The jitney drivers and service car owners went into court as soon as the ordinance was passed and were granted a temporary injunction restraining the city of Fort Worth from enforcing the ordinance. This temporary order has been set for hearing and upon the outcome of that hearing depends the fate of the intercity jitneys and motor buses. The bus operators have declared that they will carry their fight to the Supreme Court if they lose in the state courts.

Dallas Railway Files Acceptance of Fare Extension

The Dallas Railway, as was reported in the ELECTRIC RAILWAY JOURNAL issue of July 28, recently filed its formal acceptance of the proposal made by the City Commission known as the Everman Plan No. 2, under which the city agreed to extend the 6-cent fare grant for eighteen months on condition that the traction company spend $705,915 during the eighteen months that the increased fare is in effect in extensions and betterments and in purchase of thirty new modern cars. The agreement constitutes a compromise between the city officials and the traction company and was negotiated by John W. Everman, supervisor of public utilities for the city. The increased fare grant extends to Dec. 27, 1924.

With the acceptance of the ordinance that had been passed several days previous by the City Commission, the traction problems involving the city of Dallas and the Dallas Railway are solved for a period of eighteen months, and officials of both city and traction company are going ahead planning for the expected development of the city during this time.

The new franchise grants an extension of the 6-cent fare to Dec. 27, 1924. The improvements and extensions will not be required until after the completion of improvements in the Everman plan No. 1, of last year, which gave the company eight months for completion of the program. Nor will the railway company be required to act on the Trinity Heights situation immediately, the agreement stipulating that the line must be taken over during the eighteen months.

Seeks Higher Fare in Ogdensburg

James E. Kelly, receiver of the Ogdensburg Street Railway, Ogdensburg, N. Y., on July 26, petitioned the Public Service Commission for authority to charge an 8-cent fare, strip tickets, five for 35 cents, and a 5-cent cash fare for school children under sixteen years, between 8 a.m. and 5 p.m. on school days.

The company's revenues in 1922, the receiver alleges, was $45,033. There was paid out by him in operating expenses $40,376 and in taxes $2,965, leaving $1,692.

Based on its operations in 1922 the receiver estimates that the proposed new fares, if allowed, will yield the company $54,000 or about $9,000 more than the amount received in fares in 1922.

Bus Line in New Castle.—A bus line is being operated by the Pennsylvania-Ohio Coach Lines Company, a subsidiary of the Pennsylvania-Ohio Electric Company, between the center of New Castle and Mahoningtown. This section was formerly served by the electric railway cars.

Bus May Replace Railway.—If the Public Service Commission authorizes the abandonment of the Seneca Lake division of the Elmira Water, Light & Railroad Company it is likely that a bus line will be started. It is expected that the trolley and bus petition hearings will be held on the same date.

Paying Damages. — The Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y., started on July 30 paying some of the damage claim of the Malbone Street tunnel disaster which occurred in November, 1918. The claims amount to $2,200,000. Owing to the legal entanglements at least two weeks will be required to make the payments.

May Use Buses in Malden. — The Boston Elevated Railway is negotiating with the city government in Malden to put in a loop in that city as a terminus for its cars from the Everett terminal. In that case certain outlying tracks would be abandoned and a bus service substituted therefor. Should the proposed plan go through, about twenty-five buses will be required.

Regulation of Buses Rejected.—Regulation of motor buses by the Wisconsin Railroad Commission has been defeated in the Assembly. This bill if placed in effect would have given the commission power to determine the necessity for the operation of buses. Proponents of the bill said that it would protect the railways operating in the State. A bill containing similar provisions was vetoed by Governor Blaine two years ago.

College Men Employed by Railway.—Trainmen employed by the Dallas Railway are of a high class, according to C. J. Crampton, superintendent of safety and in charge of employment. Mr. Crampton recently addressed the Co-operative Club and took as the text of his address "Save the Difference." This is the slogan for the Dallas Railway. Many high school graduates and college men are employed as trainmen while attending school.

"Ad" Explains Broadway Bus Service.—In connection with the starting of its Broadway bus service whereby Broadway, Providence, is served by buses only for local service the United Electric Railways ran an "ad" in the *Evening Bulletin* explaining the conduct of the bus operation. The "ad" contained a picture of both the bus and electric car in the company's service. "The outstanding feature in explaining these changes," says the "ad," "is better service."

Personal Items

Mr. Griffin Made Vice-President of Texas Electric Railway

James P. Griffin, general passenger agent of the Texas Electric Railway, with headquarters at Dallas, has been elected vice-president of the company and a member of the board of directors. Mr. Griffin is the oldest member of the original Strickland organization in point of service.

He came to Dallas with the late Col. J. F. Strickland when preliminary organization of the Dallas-Sherman Interurban was undertaken in 1905. In 1906, when the road was incorporated, he was made secretary. When the road was completed and operation begun in 1908, he was made general passenger agent and auditor. On April 1, 1912, Mr. Griffin was made secretary of the Southern Traction Company, which was building the lines from Dallas to Waco and Dallas to Corsicana.

In October of that year he was appointed general passenger agent and auditor of those lines. When the Texas Electric Railway was organized in 1917, through the consolidation of the various Strickland interurban lines, Mr. Griffin became general passenger agent of the consolidated system and secretary of the company.

Mr. Griffin is now in his eighteenth year of service with the Strickland interurban companies.

C. P. Couch Vice-President of Holding Company

C. P. Couch, a member of the board of directors of the Arkansas Light & Power Company, has been made active vice-president of the Mississippi Power & Light Company, operating public utilities at Jackson, Vicksburg, Greenville and Columbus, Miss. He had been manager of the Arkadelphia-Malvern district of the Arkansas Light & Power Company. The Mississippi Power & Light Company with which he has become identified with headquarters at Jackson, Miss., was organized recently following the acquisition by H. C. Couch, J. L. Longino and their associates of the controlling interest in the electric light and power, street railway, and gas properties at Jackson, along with other electric light, power and street railway companies at Vicksburg, Columbus and Greenville. Mr. Couch is a brother of H. C. Couch, president of the Arkansas Light & Power Company and the Pine Bluff Company, at Pine Bluff, Ark.

H. F. Cameron Promoted

H. F. Cameron has succeeded C. P. Couch as manager of the Arkadelphia-Malvern district of the Arkansas Light & Power Company. Mr. Cameron was formerly manager of the Lake Charles Railway, Light & Water Works Company, operating the electric light and power, street railway and water systems in Lake Charles. He resigned this position to become vice-president and general manager of the Texas Gas & Electric Company. He became connected with the Arkansas Light & Power Company several months ago. For about two months he has been located at Malvern in charge of construction work there.

Thomas H. Nicholl Advanced

Thomas H. Nicholl was appointed superintendent of motive power of the Union Traction Company of Indiana, Anderson, on, July 1, 1923. Mr. Nicholl

Thomas H. Nicholl

received his early education in the Anderson public schools and his college training at the University of Michigan. After leaving the University he was employed by the Union Traction Company of Indiana, in the electrical, mechanical and maintenance of way departments.

When war broke out he entered the first officers' training camp at Fort Benjamin Harrison and was appointed a second lieutenant in the regular army, after which he was promoted to a captaincy and served two and one-half years as captain of infantry.

After leaving the army he was employed in the engineering departments of the Mid-West Engine Company of Anderson, the Como Chemical Company of Kokomo and the Ball Brothers Glass Company, of Muncie, Ind.

In 1922 he accepted a position with the Union Traction Company of Indiana as assistant to the superintendent of motive power and from this position was promoted to his present position. The company operates one of the largest interurban systems in the country. It comprises more thaen 450 miles of track.

H. M. Blain Directs State Publicity Bureau

H. M. Blain, the director of the newly formed Louisiana-Mississippi Committee on Public Utility Information, mention of which was made in the ELECTRIC RAILWAY JOURNAL, issue of July 14 will bring to this committee valuable experiences gained in his various educational and journalistic endeavors. He made his Ph. D. at the University of Virginia and was elected to Phi Beta Kappa at the Washington & Lee University. From 1907 to 1920 Mr. Blain, as professor in the Louisiana State University, organized and developed the Department of Journalism and originated the combination of theory and practice in classroom and newspaper office for students. He was at one time managing editor of the *State-Times* at Baton Rouge, La. From 1917 to 1920 he was secretary American Association of Teachers of Journalism and from 1920 to 1923 manager of the Associated Rice Millers of America, an organization advertising rice nationally. During that time he edited a monthly magazine to the trade. In 1923 Dr. Blain was elected professor of Journalism at Tulane University. In the summer of 1916 he served as professor of journalism at the New York University.

W. P. Johnston has been appointed assistant general freight and passenger agent of the Spokane & Eastern Railway & Power Company and the Inland Empire Railroad at Spokane.

D. L. Evans, who has been business and commercial superintendent of the Georgia Railway & Power Company at Gainesville, Ga., has been placed in charge of the local railway lines of the company there with the title of superintendent.

C. D. SeCheverell, for the past four years secretary of the Wisconsin Railroad Commission, has resigned to join the Middle West Utilities Company organization. He will be assistant to Martin J. Insull, president of the Central Power Company, and for the present will be located at Grand Island, Neb. Before coming to Madison Mr. SeCheverell was for a number of years an executive of the Superior Water, Light & Power Company, Superior, Wis., from which company he resigned to take up war work.

M. H. Newton was appointed on July 1 advertising manager, Cleveland territory, for the ELECTRIC RAILWAY JOURNAL, succeeding David Cameron, who has been transferred to the New York office as business manager. Mr. Newton has been continuously associated with the transportation business since 1908. He was for a number of years a reporter for the Brooklyn *Eagle*. He comes to the McGraw-Hill Company from the position of advertising manager of the White Company, Cleveland. Mr. Newton is a member of the Cleveland Advertising Club and the Advertising Club of New York.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions
A Department Open to Railways and Manufacturers
for Discussion of Manufacturing and Sales Matters

British Thomson-Houston Company Prosperous

Addressing the annual meeting of the British Thomson-Houston Company in London recently, H. C. Lewis, the chairman, said that the directors' report would be considered satisfactory in view of trade conditions during the past year. The dividend on the ordinary shares was the same as last year and a somewhat larger amount was carried forward. The volume of orders received during the year was greater than in the preceding twelve months. A comparison between the current liabilities and the liquid assets showed that the company was in a very strong financial position. The liquid assets were about four times the current liabilities. The profit for the year, after deducting all expenses and charges other than interest on debentures and loans, was £494,592. To this there was to be added the amount brought forward from the previous year, £230,704, making the total amount to be dealt with £725,296. From this was deducted £118,614 for interest on debentures and loans; £99,386 for various depreciations; £13,125 had been written off the cost of converting the preference shares, and £50,000 has been set aside for a general reserve. This left to be carried to the balance sheet £444,171. Dividends on the preference shares had been paid up Dec. 15 last, and the directors now recommended that a dividend of 6 per cent, free of income tax, be declared and paid at once on the ordinary shares, which would absorb £120,000, and leave to be carried forward £236,671.

Orders of General Electric Increase

Orders received by the General Electric Company for the three months ended June 30, 1923, were $84,249,710, an increase of 34 per cent over a similar period for last year, according to the quarterly report of stockholders signed by President Gerard Swope.

New Wire Plant in Chicago

Announcement has recently been made of the organization of the Brenner-Moxley-Mervis Company to engage in the production of copper rods and drawn copper wire for electrical and power transmission. At the outset, the company will confine itself to the production of the articles mentioned, but eventually it is planned to manufacture various allied products as well. It is claimed that the location of the new plant, which will be in the southwest side industrial district of Chicago, will relieve Mid-West consumers of heavy freight charges and considerable delays involved in long-haul shipments from the East. The president of the new company is Nathan P. Brenner, who is also the head of the American Insulated Wire & Cable Company. The vice-presidents are William J. and George T. Moxley. N. P. Brenner, Jr., is treasurer and Meyer B. Mervis is secretary. These five men also comprise the directorate of the new company.

Army Surplus Sales

A series of advertisements now being published by the government tells the story of what has been accomplished by the Director of Sales in disposing of the huge surplus stock of army material. The first advertisement of the series appeared on July 21, and each one tells a different story of what has been accomplished. The announcement that the final sales will be conducted by the War Department in September draws attention to the remarkable success that has attended previous sales. More than 2½ billion dollars worth of merchandise has been disposed of in this way. Several years ago, before the commencement of the sales, it was generally predicted that the dumping of such large quantities of goods on the market would have a disastrous reaction, and seriously interfere with normal business. Events have not justified these predictions, however. The sales have been so skillfully conducted that they have passed almost unnoticed, in spite of the vast quantity of material disposed of.

Timber Famine Here

Timber is being destroyed faster than it is being replaced, quality is growing poorer and prices are becoming higher according to Col. William B. Greeley, chief of the United States Bureau of Forestry, who is actively aiding the Federated American Engineering Societies in a nationwide movement for reforestation. He states that originally the United States contained five trillion board feet of stumpage; now only 1,600 billion feet of virgin timber and 600 billion feet of culled and second growth remain. Soft wood is being cut eight times as fast as it is being replaced, and hard wood three times as fast. Of all timber 75 per cent being cut is not being replaced.

The average price of retail lumber advanced from 1840 to 1921 three and one-half times as rapidly as the index price of all commodities. In 1870 the per capita consumption was 345 board feet; in 1906 it was 516 board feet; in 1920 it had dropped to 315 board feet. Timber famine, as to the eastern and central United States, is not hypothetical or distant; it is here.

Colonel Greeley describes the manifest requirements of the situation as: First, make the timber we have go as far as it will through reducing waste and improving the efficiency of its use. Second, make progress as rapidly as possible toward a permanent and sustaining supply of timber by increasing the growth in woodlands and by putting idle acres to work growing trees.

ELECTRIC RAILWAY MATERIAL PRICES—JULY 31, 1923

Metals—New York

Copper, electrolytic, cents per lb.	14.50
Lead, cents per lb.	6.55
Nickel, cents per lb.	29.50
Zinc, cents per lb.	6.65
Tin Straits, cents per lb.	37.75
Aluminum, 98 to 99 per cent, cents per lb.	25.50
Babbitt metal, warehouse, cents per lb.:	
Fair grade	52.00
Commercial	25.00

Bituminous Coal

Smokeless mine run, f.o.b. vessel, Hampton Roads	$5.475
Somerset mine run, Boston	2.625
Pittsburgh mine run, Pittsburgh	1.95
Franklin, Ill., screenings, Chicago	1.675
Central, Ill., screenings, Chicago	1.375
Kansas screenings, Kansas City	2.625

Track Materials—Pittsburgh

Standard Bessemer steel rails, gross ton	$43.00
Standard open hearth rails, gross ton	43.00
Railroad spikes, drive, Pittsburgh base, cents per lb.	3.15
Tie plates (flat type), cents per lb.	2.575
Angle bars, cents per lb.	2.75
Rail bolts and nuts, Pittsburgh base, cents, lb.	4.125
Steel bars, cents per lb.	2.40
Ties, white oak, Chicago, 6 in.x8 in.x8½ ft.	$1.50

Hardware—Pittsburgh

Wire nails, base per keg	3.00
Sheet iron (28 gage), cents per lb.	3.85
Sheet iron, galvanized (28 gage), cents per lb.	5.00
Galvanized barbed wire, cents per lb.	3.80
Galvanized wire, ordinary, cents per lb.	3.35

Waste—New York

Waste, wool, cents per lb.	12–16
Waste, cotton (100 lb. bale), cents per lb.:	
White	11–13.50
Colored	8–13

Paints, Putty and Glass—New York

Linseed oil (5 bbl. lots), per gal.	$1.02
White lead (100 lb. keg), cents per lb.	11.85
Turpentine (bbl. lots), per gal.	$0.95
Car window glass, (single strength), first three brackets, A quality, discount*	84.0%
Car window glass, (single strength), first three brackets, B quality, discount*	86.0%
Car window glass, (double strength) all sizes, A quality, discount*	85.0%
Putty, 100 lb. tins, cents per lb.	4.75

*These prices are f.o.b. works, boxing charges extra.

Wire—New York

Copper wire base, cents per lb.	17.50
Rubber-covered wire, No. 14, per 1,000 ft.	$7.00
Weatherproof wire base, cents per lb.	18.75

Paving Materials

Paving stone, granite, 4x8x4, f.o.b. Chicago, dressed, per sq.yd.	$3.50
Common, per sq.yd.	3.10
Wood block paving 3½, 16 treatment, N. Y., per sq.yd.	2.79
Paving brick 3½x8½x4, N. Y., per 1,000 in carload lots	54.00
Crushed stone, ¾-in., carload lots, N. Y., per cu.yd.	1.75
Cement, Chicago consumers net prices, without bags	2.20
Gravel, ¾-in., cu.yd., f. o. b. N. Y.	1.75
Sand, cu.yd., N. Y.	1.25

Old Metals—New York

Heavy copper, cents per lb.	11.50
Light copper, cents per lb.	10.00
Heavy brass, cents per lb.	6.00
Zinc, old scrap, cents per lb.	4.00
Yellow brass, cents per lb. (heavy)	6.00
Lead, heavy, cents per lb.	5.25
Steel car axles, Chicago, net ton	$17.75
Old car wheels, Chicago, gross ton	20.25
Rails (short), Chicago, gross ton	19.50
Rails, (relaying), Chicago, gross ton	33.50
Machine turnings, Chicago, net ton	8.75

Rolling Stock

Savannah Electric & Power Company, Savannah, Ga., is reported to have ordered eight new one-man safety cars.

Department of Street Railways, Detroit, Mich., is considering the purchase of from fifty to one hundred new cars of the Peter Witt type. Although the details as to how the purchase will be financed have not been decided the object in placing the orders in the near future is to have the cars on hand for next spring. Proposals are being asked by the city Department of Purchases and Supplies for the sale of twenty-five of the city's double end one-man safety cars which the department proposes to dispose of.

Track and Line

Eastern Wisconsin Electric Company, Sheboygan, Wis., plans to replace the old tracks on Ninth Street, Oshkosh with a modern type of equipment including the latest style of steel rails, steel ties and bonding.

Jackson Railway & Light Company, Jackson, Tenn., is making track improvements which will cost about $35,000. The East Jackson line from Main to Royal is being modernized. A foundation of white limestone rock is being placed under the tracks.

Springfield Street Railway, Springfield, Mass., is relocating its tracks over Pecousic Hill on the Hartford East Side line, near the Springfield-Longmeadow boundary, preparatory to the widening, straightening and regrading of Pecousic Avenue by the city of Springfield.

Los Angeles Railway has started extension of the Brooklyn Avenue line. The new track will extend from the present terminal at Wabash and Indiana Streets to connect with the old and unused part of the Gage Street line. In addition to the new work the old track will be reconstructed.

Nashville Railway & Light Company, Nashville, Tenn., has been granted permission to change the alignment and grades on its Belle Meade line out of Nashville to conform to the new Federal aid highway being built beside this line. The change is about 2½ miles in length and tracks will be moved to the center of road. A double boulevard will be eventually built.

Bamberger Electric Railroad, Salt Lake City, Utah, is constructing spur tracks at Farmington and Kaysville, Utah, which will more adequately serve the shipping interests of Davis County and act as a stimulus toward the introduction of new industries. The Farmington spur will serve the Continental Oil Company, which has purchased property for the erection of oil tanks and warehouses at that location. The Kaysville spur will serve several important industries at that point.

Pacific Electric Railway, Los Angeles, announces that work will commence immediately upon the construction of a 2-mile extension of its Alhambra-San Gabriel line from the present San Gabriel terminus. The proposed line extension is to serve newly developed territory that has been extensively settled during the rapid growth of southern California. Present plans call for the completion of the project by Nov. 1 at a total cost of $250,000. At an estimated cost of $742,000, the company has the following reconstruction program now under way on its lines in southern California:

Long Beach, Pine Avenue, reconstruct and repave 3,920 lin.ft. of double track, using 7-in., 128-lb. grooved girder rail, rock ballast, mechanically tamped, and repaving with asphalt concrete pavement; continuous joints and double-concealed bonds.

Pasadena, South Lake Avenue, reconstruct and repave 3,600 lin.ft. of double track, replacing 6-in., 72-lb. T rail with 7-in., 128-lb. grooved girder rail; rock ballast, mechanically tamped; continuous joints and double-concealed bonds; repaving with asphalt concrete pavement.

Pasadena, East Colorado Street, reconstruct and repave 8,700 lin.ft. of double track, replacing 4½-in., 60-lb. A. S. C. E. rail with 7-in., 128-lb. grooved girder rail; continuous joints and double-concealed bonds; rock ballast, mechanically tamped; replace oil macadam pavement with asphalt concrete pavement.

Los Angeles, South Hill Street, West 16th Street line, also same line of West 16th Street, from Hill Street to Flower Street reconstruct and repave 4,580 lin.ft. double track-combination-gage track, replacing 61in., 72-lb. T rail with 7-in., 128-lb. grooved girder rail; rock ballast, mechanically tamped; continuous joints and double-concealed bonds; asphalt concrete pavement.

Power Houses, Shops and Buildings

Denver & Interurban Railroad, Denver, Col., has completed the construction of a new carhouse.

Western Ohio Railway, Lima, Ohio, is installing a turbine of 2,500 kw. capacity to produce 60-cycle current at the St. Marys power house, in place of a 1,100 kw. unit operating at 25 cycles.

Twin State Gas & Electric Company, Brattleboro, Vt., is going forward with the construction of the new addition to the power house at Gorham, N. H. The work is being done by the Sanders Engineering Company of Portland, Me. It is expected that the job will be completed about Jan. 1, 1924.

Bangor, Me.—Plans are being formulated which will link up all the power systems of Maine from Bangor to the New Hampshire line. It will mean an interconnection of the lines of the Central Maine Power Company, the Cumberland County Power & Light Company and the Bangor Railway & Light Company. Heretofore, these companies in emergencies have been entirely dependent upon their own resources. The Cumberland County Power & Light Company formerly served the western section of the state, the Central Maine Power Company is serving the central part of the state and the Bangor Railway & Light Company the eastern section. Complete details of the new construction have not yet been determined.

Trade Notes

H. L. Erlicher, formerly assistant to the general purchasing agent of the General Electric Company, has been named assistant general purchasing agent, effective Aug. 1, 1923.

Burford, Hall & Smith, American Trust & Savings Bank Building, Birmingham, have been appointed district representatives for the sale of diamond soot blowers by the Diamond Power Specialty Corporation of Detroit.

Root Spring Scraper Company, Kalamazoo, Mich., announces that Ross F. Hays, 2 Rector Street, New York City, is its representative east of Buffalo, with the exception of the New England States, where the Charles N. Wood Company, 948 Old South Building, Boston, are the representatives.

Portland Cement Association, Chicago, Ill., announces the appointment of James A. Hudson as district engineer in charge of a new association office just opened in Memphis in the Exchange Building. J. R. Fairman has been appointed district engineer in charge of a new office in Birmingham in the Jefferson County Bank Building and P. H. Johnston has been appointed district engineer in charge of a new office in Jacksonville in the Graham Building.

Surplus Steel Exchange, Inc., New York, N. Y., which was recently organized, announces the opening of an office in Chicago, in order to handle the listings and inquiries from that district which have hitherto been dealt with from New York. The Chicago office will be at 2257 Oakdale Avenue, in charge of A. E. Thiffault and Raymond I. Caspers both of whom have long been affiliated with the steel trade.

Robert E. Fritsch, 6601 Limekiln Pike, Philadelphia, announces that he has now entered the field of engineering, specializing on the study of electrolysis, and is ready to serve his past friends as well as future clients. He has severed his connection of more than eleven years with the E. E. Brownell Engineering Company. During this time he made a special study of electrolysis and devoted much time to its effect and its cure in connection with gas, water and lead sheath underground cable.

New Advertising Literature

Ohmer Fare Register Company, Dayton, has just published an interesting and attractively bound 51-page booklet entitled "Evidence — Expert Testimony Of Those Best Qualified by Ability and Experience To Make Decisions." The booklet is principally a reproduced collection of letters which the company has received endorsing the value of Ohmer Fare Registers by the most able electric railway operators in this country and Canada. Some extracts giving opinions on the Ohmer system of fare accounting are included.